

ORDINANCE NO 2136

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MANHATTAN BEACH, CALIFORNIA, AMENDING OR ADDING CHAPTERS 1, 3, 12, 24, 32, 36, AND 64 OF THE MANHATTAN BEACH MUNICIPAL CODE TITLE 9 AND AMENDING CHAPTER 26 OF MANHATTAN BEACH MUNICIPAL CODE TITLE 5 TO ADOPT BY REFERENCE THE RULES, REGULATIONS, PROVISIONS AND CONDITIONS SET FORTH IN THE MOST RECENT CALIFORNIA BUILDING STANDARDS CODE AND CITY AMENDMENTS TO THE FOLLOWING CODES: BUILDING CODE; RESIDENTIAL CODE, ELECTRICAL CODE; PLUMBING CODE; GREEN BUILDING STANDARDS CODE, CALIFORNIA ENERGY CODE; AND MECHANICAL CODE.

THE CITY COUNCIL OF THE CITY OF MANHATTAN BEACH, CALIFORNIA, DOES ORDAIN AS FOLLOWS:

SECTION 1. The City Council of the City of Manhattan Beach, California, hereby finds as follows:

- A. The State of California has adopted the California Building Standard Codes that must in turn be adopted or utilized by each city or county. Certain of the provisions of these Codes are inappropriate for use within the City of Manhattan Beach because of unique climatic, geological and topographical conditions prevailing within the City. The California Health and Safety Code Sections 17958, 17985.7 and 17958.5 provide for certain amendments to the California Building Standard Codes provided findings of necessity can be made. The findings are:
1. Adverse climate conditions such as salt fog air and strong winds such as those in existence in the City of Manhattan Beach increase the likelihood of fire spreading (conflagration) from one building to another. Additionally, we must reduce potential impact to climate change through energy efficient materials and sustainable practices.
 2. Geological conditions of the City of Manhattan Beach are affected by the nearby locations of earthquake faults that can create tremendous loss of life and structures in the City.
 3. Topographical conditions of the City of Manhattan Beach coupled with the density of buildings, limited setbacks, narrow access to buildings, small lots and narrow streets would potentially create a problem for governmental agencies to respond to emergency conditions.
 4. There is a need for proposing certain amendments in the California Building Standard Codes because of climatic, geological and topographical conditions.
- B. The City Council finds that the proposed building energy efficiency standards will consume no more energy than that required per most current approved Title 24, Part 6 Building Energy Efficiency Standards (2008) and will save more energy than the current statewide Standards and the basis of the determination is that the local standards are cost-effective based on cost-effectiveness case studies.
- C. This project will not have a significant effect on the environment, and is therefore exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15061 (b)(3) of the CEQA Guidelines.

SECTION 2. Chapter 9.01 of Title 9 of the Manhattan Beach Municipal Code is hereby amended in its entirety as follows:



Certified to be
a true copy of
said document
on file in my
office.

TA

City Clerk of
the City of
Manhattan
Beach

Chapter 9.01 Building Code.**9.01.010 Adoption of 2010 California Building Code.**

Pursuant to the provisions of Section 50022.1 to 50022.10, inclusive, of the Government Code of the State and subject to the particular additions, deletions and amendments set forth in this chapter, the rules, regulations, provisions and conditions set forth in that certain Code entitled California Building Code 2010 Edition," including the Appendices and Standards (including Chapter/Section 1, Division 2; Chapter 31B; and excluding all Appendices with the exception of Appendices I and J) therein contained, promulgated and published by the International Code Council and the California Building Standards Commission, one (1) full printed copy of which, printed as a Code in book form were by the Council ordered filed and which have been filed in the office of the City Clerk, expressly incorporated herein and made a part hereof as fully and for all intents and purposes as though set forth herein at length, are hereby established and adopted as the rules, regulations, provisions and conditions to be observed and followed in the construction, alteration, improvements, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, demolition, conversion, area and height, of buildings or structures or any appurtenances connected or attached to such buildings or structures in the city; and subject to the additions, deletions and amendments set forth in this chapter, said Code with its Appendices and the said Standards containing said rules, regulations, standards, provisions and conditions is hereby established and adopted, and the same shall be designated, known and referred to as the "Building Code" of and for the City.

9.01.020 Scope.

Section 101.4 of the California Building Code is hereby amended for administrative requirements as follows:

Section 101.4. Referenced codes. The other codes listed in Sections 101.4.1 through 101.4.6 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. Specifically, the Electrical, Gas, Mechanical, Plumbing, Swimming Pool, and Energy Codes; the most recently adopted California State and Manhattan Beach Municipal Codes will take precedence.

9.01.030 Work exempt from permit.

Section 105.2, item 9 is hereby amended per administrative requirements as follows:

9. Prefabricated swimming pools accessory to Group R-3 Occupancy that are less than 24 18 inches (457 mm) deep, do not exceed 5,000 gallons (18925 L) and installed entirely above ground.

9.01.040 Expiration of plan review.

Section 105.3.2 is amended in its entirety for administrative requirements as follows:

Section 105.3.2 Time limitation of application. Applications for which no permit is issued within 180 days following the date of application shall expire by limitation and plans and other data submitted for review may thereafter be returned to the applicant or destroyed by the Building Official. The Building Official may extend the time for action by applicant for a period not exceeding 180 days upon written request by the applicant and justifiable cause demonstrated. No application shall be extended more than once. In order to renew action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee and plans shall be reviewed under the current codes and ordinances at the time of the new applications.

9.01.050 Permit Expiration.

Section 105.5 is hereby amended for administrative requirements as follows:

1 **105.5 Expiration.** Every permit issued shall become invalid unless the work on the site authorized by
2 such permit is commenced within 180 days after its issuance, or if the work authorized on the site by
3 such permit is suspended or abandoned for a period of 180 days after the work is commenced, or if the
building or work authorized by such permit is not completed within 2 calendar years from the issuance
date of the permit.

4 Before such work can be recommenced, a new permit, or a renewed permit as specified below, shall be
first obtained. No permit shall be renewed more than once.

5 For permits where work has not commenced within 180 days from the date of such permit, a renewed
6 permit may be obtained provided that: (1) no changes have been made or will be required in the
original plans and specifications for such work; and (2) the expiration has not exceeded two years from
the original issuance date.

7 For permits where work had commenced and was subsequently suspended or abandoned for a period
8 exceeding 180 days, a renewed permit may be obtained provided that: (1) No changes have been
made or will be required in the original plans and specifications for such work; and (2) the expiration has
9 not exceeded two years from the issuance date and/or (3) Where construction has progressed and has
been approved to the point whereby only a final inspection(s) is required, a fee shall be determined
10 based on the number of estimated inspections, estimated staff time, and required meetings as
determined by the Building Official.

11 For permits that have exceeded two years beyond the issuance date, a new permit is required. The
12 applicant shall pay the fee based on the valuation of the uncompleted work required for a plan check
and a new permit and plans will be reviewed under the current codes and ordinances at the time of the
13 new applications.

14 Any permittee holding an unexpired permit may apply for an extension of the time within which work
under that permit may be continued when, for good and satisfactory reasons, the permittee is unable to
15 continue work within the time required by this section. The Building Official may extend the time for
action by the permittee for a period not exceeding six calendar months upon written request by the
16 permittee showing that circumstances beyond the control of the permittee have prevented action from
being taken. No permit shall be extended more than once.

17 If the owner or applicant fails to complete the construction work within the time required, the Building
18 Official is authorized to obtain the abatement of any unsafe condition or nuisance created by such
incomplete work. The City Attorney is authorized to file an action for the abatement of any such unsafe
19 condition or nuisance if required to do so by the Building Official.

20 **9.01.060 Fees.**

21 **Sections 109.2 and 109.4 shall be amended in entirety per administrative requirements as
follows:**

22 **109.2 Schedule of permit fees.** The fees shall be determined by the most current City Resolution of
23 Fees.

24 Plan Review Fees. When submittal documents are required by the building official, a plan review fee
shall be paid at the time of submitting the submittal documents for plan review. Said plan review fee
25 shall be determined by the most current City Resolution of Fees.

26 The plan review fees specified in this section are separate fees from the permit fees and are in addition
to the permit fees.

27 When submittal documents are incomplete or changed so as to require additional plan review or when
28 the project involves deferred submittal items as defined in Section 107.3.4.2, an additional plan review
fee shall be charged as determined by the most current City Resolution of Fees.

109.4 Work commencing before permit issuance. Any person who commences any work on a building, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary permits shall be subject to a fee established by the Building Official and the most current Manhattan Beach Resolution of Fees in addition to the required permit fees.

Investigation. Whenever any work for which a permit is required by this code has been commenced without first obtaining said permit, a special investigation shall be made before a permit may be issued for such work.

Investigation Fee. An investigation fee, in addition to the permit fee, shall be collected whether or not a permit is then or subsequently issued. The investigation fee shall be equal up to the amount of the permit fee required by this code as determined by the Building Official. The minimum investigation fee shall be determined by the most current Resolution of Fees. The payment of such investigation fee shall not exempt any person from compliance with all other provisions of this code nor from any penalty prescribed by law.

9.01.070 Violation penalties.

Section 114.4 is amended for administrative requirements as follows:

Section 114.4. Violation penalties. Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or directive of the building official, or of a permit or certificate issued under the provisions of this code, shall be subject to the penalties as prescribed by law. Every person who willfully resists, delays, obstructs or interferes in any way with any City Building Inspector in the discharge or attempt to discharge any duty of his or her office or employment shall be guilty of a violation of this Chapter

Any person, firm, or corporation violating any of the provisions or failing to comply with any of the mandatory requirements of the ordinances of Manhattan Beach shall be guilty of a misdemeanor. Any person convicted of a misdemeanor under the ordinances of Manhattan Beach shall be punished by a fine of not more than one thousand dollars (\$1,000), or by imprisonment not to exceed six (6) months, or by both such fine and imprisonment. Each such person shall be guilty of a separate offense for each and every day during any portion of which any violation of any provision of the ordinances of Manhattan Beach is committed, continued, or permitted by any such person, and shall be punished accordingly.

9.01.080 Definitions.

Section 202 is hereby amended for administrative requirements by adding as follows:

ABANDONED OR SUSPENDED WORK. Work that has been stopped or no progress in construction and no inspection is required or performed for a period of 180 days.

9.01.090 Yards.

Section 1206.2 of the California Building Code is hereby revised per the above topographical findings to add Exception 1.

Exception 1. One and two family dwellings not exceeding three stories, which are located on a 30 foot wide lot or less may have 3 foot (914 mm) side yards, if additional artificial light and mechanical ventilation are provided for the structure as determined to be adequate by the building official.

9.01.100 Roofing and Re-roofing.

Table 1505 is amended per the above climatic and topographical findings as follows:

Table 1505.1. Minimum Roof Covering Classification for Types of Construction. All roof classifications of "C" shall be deleted from Table 1505.1 and replaced by class "B" roof classification.

Sections 1505 and 1507 are amended per the above climatic and topographical findings as follows:

Add: Fire-retardant roofs are roofing assemblies complying with California Building Code Standards and listed as Class A or B roofs. The use of fire-retardant wood shakes or fire retardant wood shingles is prohibited.

1505.5 Non-classified Roofing. Non-classified roofing is approved material that is not listed as a Class A or B roofing assembly. The use of wood shakes or wood shingles is prohibited.

Sections 1505.4 and 1505.5, 1507.6, and 1507.7 are hereby deleted

Section 1510.1 is amended per the above climatic and topographical findings to add Exception 2 as follows:

Exception 2. All re-roofing shall conform to the applicable provisions of Chapter 15 of this code and as otherwise required in this chapter.

Roofing materials and methods of application shall comply with the California Building Code standards or shall follow the manufacturer's installation requirements when approved by the building official.

Wood shakes and wood shingles re-roofs of entire structure are prohibited unless approved by the building official because of special circumstances.

9.01.110 General structural design provisions.

The following sections are amended per the above geological and topographical findings as follows:

(a) **Tilt up Systems.** Modify Section 12.2.1 of ASCE 7 by adding the following:

12.2.1.1 Determination of Seismic Force-Resisting Systems for Tilt-up Building. Tilt-up buildings bearing wall system and building frame system shall be classified as reinforced concrete structural wall system. Only special reinforced concrete structural walls shall be permitted in Seismic Design Categories D, E and F.

(b) **Re-entrant Corners.** Modify Section 12.12.4 of ASCE 7 by adding the following:

12.12.4.1 Re-entrant Corners. For buildings with re-entrant corners the return walls shall be considered for deformation compatibility with the diaphragm and shall be either seismically isolated from the diaphragm or attached by a connection of sufficient capacity to integrate their load into the diaphragm.

(c) **Minimum Base Shear.** Revise equation 12.8-5 of ASCE 7 as follows:

$$C_s = 0.044S_{DS} \geq 0.01$$

- (d) **P-Delta Effects.** Revise equation 12.8-16 of ASCE 7 as follows:

$$\theta = \frac{P_d \Delta}{V_d h_x C_d}$$

- (e) **Subdiaphragm Design.** Paragraph deleted.

1613.13 ASCE 7, Section 12.11.2.2.3. Modify ASCE 7, Section 12.12.4 to read as follows:

12.11.2.2.3 Wood Diaphragms. In wood diaphragms, the continuous ties shall be in addition to the diaphragm sheathing. Anchorage shall not be accomplished by use of toe nails or nails subject to withdrawal nor shall wood ledgers or framing be used in cross-grain bending or cross-grain tension. The diaphragm sheathing shall not be considered effective as providing ties or struts required by this section.

For structures assigned to Seismic Design Category D, E or F, wood diaphragms supporting concrete or masonry walls shall comply with the following:

1. The spacing of continuous ties shall not exceed 40 feet. Added chords of diaphragms may be used to form subdiaphragms to transmit the anchorage forces to the main continuous crossties.
2. The maximum diaphragm shear used to determine the depth of the subdiaphragm shall not exceed 75% of the maximum diaphragm shear.

- (f) **Building Separations.** Delete Section 12.12.3 of ASCE 7 and amend Equation 16-44 of Section 1613.6.7 of the 2010 California Building Code to read as follows:

1613.6.7 Minimum distance for building separation. All buildings and structures shall be separated from adjoining structures. Separation shall allow for the maximum inelastic response displacement (δ_M). δ_M shall be determined at the critical locations with consideration for both translational and torsional displacements of the structure using Equation 16-44.

$$\delta_M = \frac{C_d \delta_{max}}{1} \quad (\text{Equation 16-44})$$

where:

C_d = Deflection amplification factor in Table 12.2-1 of ASCE 7.

δ_{max} = Maximum displacement defined in Section 12.8.4.3 of ASCE 7.

Adjacent buildings on the same property shall be separated by a distance not less than δ_{MT} , determined by Equation 16-45.

$$\delta_{MT} = \sqrt{(\delta_{M1})^2 + (\delta_{M2})^2} \quad (\text{Equation 16-45})$$

Where:

δ_{M1} and δ_{M2} = The maximum inelastic response displacements of the adjacent buildings in accordance with Equation 16-44.

Where a structure adjoins a property line not common to a public way, the structure shall also be set back from the property line by not less than the maximum inelastic response displacement, δ_M of that structure.

(g) **Vertical Combination of Lateral Force Resisting Systems.** Modify ASCE 7 Section 12.2.3.1 Exception 3 to read as follows:

3. Detached one- and two-family dwellings up to two stories in height of light frame construction.

(h) **Buckling Restrained Braced Frame System.** Correct values per ASCE 7 Table 12.8-2 as follows:

Structure Type	C_t	X
Eccentrically braced steel frames and buckling-restrained braced frames	0.03	0.75

(i) **Assumption of Flexible Diaphragm.**

Exception: For buildings two stories or less in height with diaphragm constructed of wood structural panels, the cantilevered portion is permitted to be idealized as flexible, provided the length of the overhang does not exceed fifteen percent of the dimension between the lateral force resisting lines of resistance adjacent to the cantilevered portion in the direction considered. Nor shall the overhang dimension exceed twenty-five percent of the width of the diaphragm, where the width is the dimension perpendicular to the direction of applied lateral force.

(j) **Suspended ceilings.** Add Section 1613.16 to Chapter 16 of the 2010 California Building Code to read as follows:

1613.16 Suspended Ceilings. Minimum design and installation standards for suspended ceilings shall be determined in accordance with the requirements of Section 2506.2.1 of this Code and this subsection.

1613.16.1 Scope. This part contains special requirements for suspended ceilings and lighting systems. Provisions of Section 13.5.6 of ASCE 7 shall apply except as modified herein.

1613.16.2 General. The suspended ceilings and lighting systems shall be limited to 6 feet (1828 mm) below the structural deck unless the lateral bracing is designed by a licensed engineer or architect.

1613.16.3 Design and Installation Requirements.

1613.16.3.1 Bracing at Discontinuity. Bracing to the structure shall be provided at changes in the ceiling plane elevation or at discontinuities in the ceiling grid system.

1613.16.3.2 Support for Appendages. Cable trays, electrical conduits and piping shall be independently supported and independently braced from the structure.

1613.16.3.3 Sprinkler Heads. All sprinkler heads (drops) except fire-resistance-rated floor/ceiling or roof/ceiling assemblies, shall be designed to allow for free movement of the sprinkler pipes with oversize rings, sleeves or adaptors through the ceiling tile, in accordance with Section 13.5.6.2.2 (e) of ASCE 7.

Sprinkler heads penetrating fire-resistance-rated floor/ceiling or roof/ceiling assemblies shall comply with Section 713 of this Code.

1613.16.3.4 Perimeter Members. A minimum wall angle size of at least a two inch (51 mm) horizontal leg shall be used at perimeter walls and interior full height partitions. The first ceiling tile shall maintain 3/4 inch (19 mm) clear from the finish wall surface. An equivalent alternative detail that will

provide sufficient movement due to anticipated lateral building displacement may be used in lieu of the long leg angle subject to the approval of the Building Officer.

1613.16.4 Special Requirements for Means of Egress. Suspended ceiling assemblies located along means of egress serving an occupant load of 30 or more shall comply with the following provisions.

1613.16.4.1 General. Ceiling suspension systems shall be connected and braced with vertical hangers attached directly to the structural deck along the means of egress serving an occupant load of 30 or more and at lobbies accessory to Group A Occupancies. Spacing of vertical hangers shall not exceed 2 feet (610 mm) on center along the entire length of the suspended ceiling assembly located along the means of egress or at the lobby.

1613.16.4.2 Assembly Device. All lay-in panels shall be secured to the suspension ceiling assembly with two hold-down clips minimum for each tile within a 4-foot (1219 mm) radius of the exit lights and exit signs.

1613.16.4.3 Emergency Systems. Independent supports and braces shall be provided for light fixtures required for exit illumination. Power supply for exit illumination shall comply with the requirements of Section 1006.3 of this Code.

1613.16.4.4 Supports for Appendage. Separate support from the structural deck shall be provided for all appendages such as light fixtures, air diffusers, exit signs, and similar elements.

(k) Special Inspection for Concrete Construction. Amend Section 1704.4 of the 2010 California Building Code to read as follows:

9.01.120 Special inspection provisions.

The following sections are amended per the above geological and topographical findings as follows:

1704.4 Concrete Construction. The special inspections and verifications for concrete construction shall be as required by this section and Table 1704.4.

Exceptions: Special inspection shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less above grade plane that are fully supported on earth or rock, where the structural design of the footing is based on a specified compressive strength, f'_c , no greater than 2,500 pounds per square inch (psi) (17.2 Mpa).
2. Continuous concrete footings supporting walls of buildings three stories or less in height that are fully supported on earth or rock where:
 - 2.1. The footings support walls of light-frame construction;
 - 2.2. The footings are designed in accordance with Table 1805.4.2; or
 - 2.3. The structural design of the footing is based on a specified compressive strength, f'_c , no greater than 2,500 pounds per square inch (psi) (17.2 Mpa), regardless of the compressive strength specified in the construction documents or used in the footing construction.
3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 Mpa).
4. Concrete patios, driveways and sidewalks, on grade.

9.01.130 Foundation design provisions.

The following sections are amended per the above geological and topographical findings as follows:

(l) Driven Deep Foundations. Amend Section 1704.8 of the 2010 California Building Code to read as follows:

1704.8 Driven deep foundations and connection grade beams. Special inspections shall be performed during installation and testing of driven deep foundation elements as required by Table 1704.8. Special inspections shall be performed for connection grade beams in accordance with Section 1704.4 for structures assigned to Seismic Design Category D, E or F. The approved geotechnical report, and the construction documents prepared by the registered design professionals, shall be used to determine compliance.

(m) Cast-In Place Deep Foundations. Amend Section 1704.9 of the 2010 California Building Code to read as follows:

1704.9 Cast-in-place deep foundations and connection grade beams. Special inspections shall be performed during installation and testing of cast-in-place deep foundation elements as required by Table 1704.9. Special inspections shall be performed for connection grade beams in accordance with Section 1704.4 for structures assigned to Seismic Design Category D, E or F. The approved geotechnical report, and the construction documents prepared by the registered design professionals, shall be used to determine compliance.

(n) Seismic Resistance Inspection. Amend Section 1705.3 of the 2010 California Building Code to read as follows:

1705.3 Seismic resistance. The statement of special inspections shall include seismic requirements for cases covered in Sections 1705.3.1 through 1705.3.5.

Exception: Seismic requirements are permitted to be excluded from the statement of special inspections for structures designed and constructed in accordance with the following:

1. The structure consists of light-frame construction; the design spectral response acceleration at short periods, S_{DS} , as determined in Section 1613.5.4, does not exceed 0.5g; and the height of the structure does not exceed 35 feet (10 668 mm) above grade plane; or

2. The structure is constructed using a reinforced masonry structural system or reinforced concrete structural system; the design spectral response acceleration at short periods, S_{DS} , as determined in Section 1613.5.4, does not exceed 0.5g, and the height of the structure does not exceed 25 feet (7620 mm) above grade plane; or

3. Detached one- or two-family dwellings not exceeding two stories above grade plane, provided the structure is not assigned to Seismic Design Category D, E or F and does not have any of the following plan or vertical irregularities in accordance with Section 12.3.2 of ASCE 7:

3.1 Torsional irregularity.

3.2 Nonparallel systems.

3.3 Stiffness irregularity—extreme soft story and soft story.

3.4 Discontinuity in capacity—weak story.

9.01.140 Additional structural observation provisions.

The following sections are amended per the above geological and topographical findings as follows:

Structural Observation - General. Amend Section 1710.1 of the 2010 California Building Code to read as follows:

1710.1 General. Where required by the provisions of Section 1710.2 or 1710.3, the owner shall employ structural observer to perform structural observations as defined in Section 1702. The structural observer shall be one of the following individuals:

1. The registered design professional responsible for the structural design, or
2. A registered design professional designated by the registered design professional responsible for the structural design.

Prior to the commencement of observations, the structural observer shall submit to the building official a written statement identifying the frequency and extent of structural observations.

The owner or owner's representative shall coordinate and call a preconstruction meeting between the structural observer, contractors, affected subcontractors and special inspectors. The structural observer shall preside over the meeting. The purpose of the meeting shall be to identify the major structural elements and connections that affect the vertical and lateral load resisting systems of the structure and to review scheduling of the required observations. A record of the meeting shall be included in the report submitted to the building officer.

Observed deficiencies shall be reported in writing to the owner or owner's representative, special inspector, contractor and the building official. Upon the form prescribed by the building official, the structural observer shall submit to the building official a written statement at each significant construction stage stating that the site visits have been made and identifying any reported deficiencies which, to the best of the structural observer's knowledge, have not been resolved. A final report by the structural observer which states that all observed deficiencies have been resolved is required before acceptance of the work by the building official.

(p) Structural Observation – Seismic. Amend Section 1710.2 of the 2010 Edition of the California Building Code are amended to read as follows:

1710.2 Structural observation for seismic resistance. Structural observations shall be provided for those structures assigned to Seismic Design Category D, E or F, as determined in Section 1613, where one or more of the following conditions exist:

1. The structure is classified as Occupancy Category III or IV in accordance with Table 1604.5.
2. The height of the structure is greater than 75 feet (22860 mm) above the base.
3. The structure is classified as Occupancy Category I or II in accordance with Table 1604.5, and a lateral design system is required to be designed by a registered designed professional.

Exception: One-story wood framed Group R-3 and Group U Occupancies less than 2000 square feet in area, provided the adjacent grade is not steeper than 1 unit vertical in 10 units horizontal (10% sloped), assigned to Seismic Design Category D.

4. When so designated by the registered design professional responsible for the structural design.
5. When such observation is specifically required by the building official.

9.01.150 Additional foundation design provisions.

The following sections are amended per the above geological and topographical findings as follows:

- (a) **General.** Modify Section 1805.1 of the California Building Code as follows:

1805.1 General. The top surface of footings shall be level. The bottom surface of footings is permitted to have a slope not exceeding one unit vertical in ten units horizontal (ten percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footing or where the surface of the ground slopes more than one unit vertical in ten units horizontal (ten percent slope). This stepping requirement shall also apply to the top surface of grade beams supporting walls. Footings shall be reinforced with minimum of four one-half-inch diameter (12.7 mm) deformed reinforcing bars. Two bars shall be placed at the top and bottom of the footings as shown in Figure 1805.1 of this code.

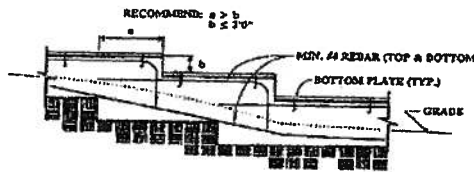


Figure 1805.1

- (b) **Footing for Interior Bearing Walls.** Modify Table 1805.4.2 of the California Building Code by deleting Footnote c.

- (c) **Wood and Timber Footing.** Delete Sections 1805.4.5 and 1805.4.6 of the California Building Code in their entirety.

- (d) Delete Section 1805.5 of the California Building Code in its entirety and replace with the following:

1805.5 Foundation Walls. Concrete and masonry foundation walls exceeding eighteen inches in height shall be designed in accordance with Chapter 19 or 21 of the California Building Code, respectively.

1805.5.1 Foundation Wall Drainage. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of unretained backfill unless a drainage system in accordance with Sections 1807.4.2 and 1807.4.3 is installed.

- (e) **Permanent wood foundation systems.** Amend Section 1807.1.4 of the 2010 California Building Code to read as follows:

1807.1.4 Permanent wood foundations systems. Permanent wood foundation systems shall be designed and installed in accordance with AF&PA PWF. Lumber and plywood shall be treated in accordance with AWP A U1 (Commodity Specification A, Use Category 4B and Section 5.2) and shall be identified in accordance with Section 2303.1.8.1. Permanent wood foundation systems shall not be used for structures assigned to Seismic Design Category D, E or F.

- (f) **Prescriptive design of foundation walls.** Amend Section 1807.1.6 of the 2010 California Building Code to read as follows:

1807.1.6 Prescriptive design of concrete and masonry foundation walls. Concrete and masonry foundation walls that are laterally supported at the top and bottom shall be permitted to be designed and constructed in accordance with this section. Prescriptive design of foundation walls shall not be used for structures assigned to Seismic Design Category D, E or F

(g) Prescriptive footings. Amend Section 1809.7 and Table 1809.7 of the 2010 Edition of the California Building Code are amended to read as follows:

1809.7 Prescriptive footings for light-frame construction. Where a specific design is not provided, concrete or masonry-unit footings supporting walls of light-frame construction shall be permitted to be designed in accordance with Table 1809.7. Prescriptive footings in Table 1809.7 shall not exceed one story above grade plane for structures assigned to Seismic Design Category D, E or F.

TABLE 1809.7

**PRESCRIPTIVE FOOTINGS SUPPORTING WALLS OF
LIGHT-FRAME CONSTRUCTION ^{a, b, c, d, e}**

<u>NUMBER OF FLOORS SUPPORTED BY THE FOOTING ^f</u>	<u>WIDTH OF FOOTING (inches)</u>	<u>THICKNESS OF FOOTING (inches)</u>
1	12	6
2	15	6
3	18	8

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm

- a. Depth of footings shall be in accordance with Section 1809.4.
- b. The ground under the floor shall be permitted to be excavated to the elevation of the top of the footing.
- c. See Section 1908 for additional requirements for concrete footings of structures assigned to Seismic Design Category C, D, E or F.
- d. For thickness of foundation walls, see Section 1807.1.6.
- e. Footings shall be permitted to support a roof addition to the stipulated number of floors. Footings supporting roof only shall be as required for supporting one floor.

(h) Timber footings. Amend Section 1809.12 of the 2010 California Building Code to read as follows:

1809.12 Timber footings. Timber footings shall be permitted for buildings of Type V construction and as otherwise approved by the building official. Such footings shall be treated in accordance with AWP A U1 (Commodity Specification A, Use Category 4B). Treated timbers are not required where placed entirely below permanent water level, or where used as capping for wood piles that project above the water level over submerged or marsh lands. The compressive stresses perpendicular to grain in untreated timber footing supported upon treated piles shall not exceed 70 percent of the allowable stresses for the species and grade of timber as specified in the AF&PA NDS. Timber footings shall not be used in structures assigned to Seismic Design Category D, E or F.

(i) Timber. Amend Section 18010.3.2.4 of the 2010 Edition of the California Building Code to read as follows:

18010.3.2.4 Timber. Timber deep foundation elements shall be designed as piles or poles in accordance with AF&PA NDS. Round timber elements shall conform to ASTM D 25. Sawn timber elements shall conform to DOC PS-20. Timber deep foundations shall not be used in structures assigned to Seismic Design Category D, E or F.

9.01.130 Concrete.

The following sections are amended per the above geological and topographical findings as follows:

8.16.040 Concrete.

(a) Structural Plain (Unreinforced) Concrete. Delete Sections 1908.1.8, 1909 of the California Building Code in their entirety and replace with following:

1909.1 Scope. Plain concrete shall not be used other than as fill. The minimum specified compression strength of concrete used as fill shall be one thousand five hundred psi (10.3 MPa) at twenty-eight days.

(b) Concrete Special Moment Frame Column Confinement.

(1) Modify ACI 318 Section 21.4.4.1 by adding a new item as follows:

21.4.4.1(f). Where the calculated point of contraflexure is not within the middle half of the member clear height, provide transverse reinforcement as specified in ACI 318 Sections 21.4.4.1, Items (a) through (c), over the full height of the member.

(2) Modify ACI 318 by adding Section 21.4.4.7 as follows:

21.4.4.7. At any section where the design strength, ϕP_n , of the column is less than the sum of the shears V_e computed in accordance with ACI 318 Sections 21.3.4.1 and 21.4.5.1 for all the beams framing into the column above the level under consideration, transverse reinforcement as specified in ACI 318 Sections 21.4.4.1 through 21.4.4.3 shall be provided. For beams framing into opposite sides of the column, the moment components may be assumed to be of opposite sign. For the determination of the design strength, ϕP_n , of the column, these moments may be assumed to result from the deformation of the frame in any one principal axis.

(c) **Special Reinforced Concrete Wall Capacity.**

(1) Modify ACI 318 by adding Section 21.7.4.6 as follows:

21.7.4.6. Walls and portions of walls with $P_u > 0.35P_o$ shall not be considered to contribute to the calculated strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of ACI 318 Section 21.11.

(d) **Reinforced Concrete Diaphragms.**

(4) Modify ACI 318 Section 21.9.4 by adding the following:

21.9.4.1. Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than three inches (76 mm) or six d_b thick, where d_b is the diameter of the largest reinforcement in the topping slab.

(e) **Tilt Up Buildings.**

Modify Section 1908.1.4 of the California Building Code as follows:

21.2.1.4. For structures assigned to Seismic Design Category D, E or F, special moment frames, special reinforced concrete structural walls, diaphragms and trusses and foundations complying with Sections 21.2 through Sections 21.10 shall be used to resist forces induced by earthquake motions. Members not proportioned to resist earthquake forces shall comply with Section 21.11.

(f) **Deflection of Slender Walls.**

(1) Modify equation (14-7) of ACI 318 Section 14.8.3 as follows:

I_{cr} shall be calculated by Equation (14-7), and M_a shall be obtained by iteration of deflections.

$$I_{cr} = \frac{E_s}{E_c} \left(A_s + \frac{P_u}{f_y} \frac{h}{2d} \right) (d - c)^2 + \frac{I_g c^3}{3} \quad (14-7)$$

and the value E_s/E_c shall not be taken less than six.

(2) Modify ACI 318 Section 14.8.4 as follows:

14.8.4. Maximum out-of-plane deflection, Δ_s , due to service loads, including $P\Delta$ effects, shall not exceed $l/150$.

If M_a , maximum moment at mid-height of wall due to service lateral and eccentric loads, including $P\Delta$ effects, exceed $(2/3)M_{cr}$, Δ_s shall be calculated by Equation (14-8):

21.4.4.1(f). Where the calculated point of contraflexure is not within the middle half of the member clear height, provide transverse reinforcement as specified in ACI 318 Sections 21.4.4.1, Items (a) through (c), over the full height of the member.

(2) Modify ACI 318 by adding Section 21.4.4.7 as follows:

21.4.4.7. At any section where the design strength, ϕP_n , of the column is less than the sum of the shears V_e computed in accordance with ACI 318 Sections 21.3.4.1 and 21.4.5.1 for all the beams framing into the column above the level under consideration, transverse reinforcement as specified in ACI 318 Sections 21.4.4.1 through 21.4.4.3 shall be provided. For beams framing into opposite sides of the column, the moment components may be assumed to be of opposite sign. For the determination of the design strength, ϕP_n , of the column, these moments may be assumed to result from the deformation of the frame in any one principal axis.

(c) **Special Reinforced Concrete Wall Capacity.**

(1) Modify ACI 318 by adding Section 21.7.4.6 as follows:

21.7.4.6. Walls and portions of walls with $P_u > 0.35P_o$ shall not be considered to contribute to the calculated strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of ACI 318 Section 21.11.

(d) **Reinforced Concrete Diaphragms.**

(4) Modify ACI 318 Section 21.9.4 by adding the following:

21.9.4.1. Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than three inches (76 mm) or six d_b thick, where d_b is the diameter of the largest reinforcement in the topping slab.

(e) **Tilt Up Buildings.**

Modify Section 1908.1.4 of the California Building Code as follows:

21.2.1.4. For structures assigned to Seismic Design Category D, E or F, special moment frames, special reinforced concrete structural walls, diaphragms and trusses and foundations complying with Sections 21.2 through Sections 21.10 shall be used to resist forces induced by earthquake motions. Members not proportioned to resist earthquake forces shall comply with Section 21.11.

(f) **Deflection of Slender Walls.**

(1) Modify equation (14-7) of ACI 318 Section 14.8.3 as follows:

I_{cr} shall be calculated by Equation (14-7), and M_e shall be obtained by iteration of deflections.

$$I_{cr} = \frac{E_s}{E_c} \left(A_s + \frac{P_u}{f_p} \frac{h}{2d} \right) (d - c)^2 + \frac{I_e c^3}{3} \quad (14-7)$$

and the value E_s/E_c shall not be taken less than six.

(2) Modify ACI 318 Section 14.8.4 as follows:

14.8.4. Maximum out-of-plane deflection, Δ_s , due to service loads, including $P\Delta$ effects, shall not exceed $l_p/150$.

If M_a , maximum moment at mid-height of wall due to service lateral and eccentric loads, including $P\Delta$ effects, exceed $(2/3)M_{cr}$, Δ_s shall be calculated by Equation (14-8):

$$\Delta_s = \frac{2}{3}\Delta_{\sigma} + \frac{M_s - \frac{2}{3}M_{\sigma}}{M_a - \frac{2}{3}M_{\sigma}} \left(\Delta_a - \frac{2}{3}\Delta_{\sigma} \right) \quad (14-8)$$

where:

$$\Delta_{\sigma} = \frac{5M_{\sigma}l_c^2}{48E_cI_{\sigma}} \quad \text{and} \quad \Delta_a = \frac{5M_al_c^2}{48E_cI_{\sigma}}$$

If M_a does not exceed $(2/3)M_{cr}$, Δ_s shall be calculated by Equation (14-9):

$$\Delta_s = \left(\frac{M_a}{M_{\sigma}} \right) \Delta_{\sigma} \quad (14-9)$$

(g) Reinforcement. Amend Section 1908.1 to read as shown below and add Sections 1908.1.11 through 1908.1.14 to Chapter 19 of the 2010 California Building Code to read as follows:

1908.1 General. The text of ACI 318 shall be modified as indicated in Sections 1908.1.1 through 1908.1.14.

1908.1.11 ACI 318, Section 21.6.4.1. Modify ACI 318, Section 21.6.4.1, to read as follows:

Where the calculated point of contraflexure is not within the middle half of the member clear height, provide transverse reinforcement as specified in ACI 318 Sections 21.6.4.1, Items (a) through (c), over the full height of the member.

1908.1.12 ACI 318, Section 21.6.4. Modify ACI 318, Section 21.6.4, by adding Section 21.6.4.8 to read as follows:

21.6.4.8 – At any section where the design strength, ϕP_n , of the column is less than the sum of the shears V_u computed in accordance with ACI 318 Sections 21.5.4.1 and 21.6.5.1 for all the beams framing into the column above the level under consideration, transverse reinforcement as specified in ACI 318 Sections 21.6.4.1 through 21.6.4.3 shall be provided. For beams framing into opposite sides of the column, the moment components may be assumed to be of opposite sign. For the determination of the design strength, ϕP_n , of the column, these moments may be assumed to result from the deformation of the frame in any one principal axis.

1908.1.13 ACI 318, Section 21.9.4. Modify ACI 318, Section 21.9.4, by adding Section 21.9.4.6 to read as follows:

21.9.4.6 – Walls and portions of walls with $P_u > 0.35P_o$ shall not be considered to contribute to the calculated strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of ACI 318 Section 21.13.

1908.1.14 ACI 318, Section 21.11.6. Modify ACI 318, Section 21.11.6, by adding the following:

Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than 3 inches (76 mm) or 6 d_b thick, where d_b is the diameter of the largest reinforcement in the topping slab.

(h) Intermediate structural wall. Amend Section 1908.1.2 of the 2010 California Building Code to read as follows:

1908.1.2 ACI 318, Section 21.1.1. Modify ACI 318, Sections 21.1.1.3 and 21.1.1.7 as follows:

21.1.1.3 – Structures assigned to Seismic Design Category A shall satisfy requirements of Chapters 1 to 19 and 22; Chapter 21 does not apply. Structures assigned to Seismic Design Category B, C, D, E or F also shall satisfy 21.1.1.4 through 21.1.1.8, as applicable. Except for structural elements of plain concrete complying with Section 1908.1.8 of the International Building Code, structural elements of plain concrete are prohibited in structures assigned to Seismic Design Category C, D, E or F.

21.1.1.7 – Structural systems designated as part of the seismic-force-resisting system shall be restricted to those permitted by ASCE 7. Except for Seismic Design Category A, for which Chapter 21 does not apply, the following provisions shall be satisfied for each structural system designated as part of the seismic-force-resisting system, regardless of the Seismic Design Category:

- (a) Ordinary moment frames shall satisfy 21.2.
- (b) Ordinary reinforced concrete structural walls and ordinary precast structural walls need not satisfy any provisions in Chapter 21.
- (c) Intermediate moment frames shall satisfy 21.3.
- (d) Intermediate precast structural walls shall satisfy 21.4.
- (e) Special moment frames shall satisfy 21.5 through 21.8.
- (f) Special structural walls shall satisfy 21.9.
- (g) Special structural walls constructed using precast concrete shall satisfy 21.10.

All special moment frames and special structural walls shall also satisfy 21.1.3 through 21.1.7. Concrete tilt-up wall panels classified as intermediate precast structural wall system shall satisfy 21.9 in addition to 21.4.2 and 21.4.3 for structures assigned to Seismic Design Category D, E or F.

(i) Wall pier. Amend Section 1908.1.3 of the 2010 California Building Code to read as follows:

1908.1.3 ACI 318, Section 21.4. Modify ACI 318, Section 21.4, by renumbering Section 21.4.3 to become 21.4.4 and adding new Sections 21.4.3, 21.4.5, 21.4.6 and 21.4.7 to read as follows:

21.4.3 – Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at the deformation induced by the design displacement or shall use Type 2 mechanical splices.

21.4.4 – Elements of the connection that are not designed to yield shall develop at least $1.5 S_y$.

21.4.5 – Wall piers in Seismic Design Category D, E or F shall comply with Section 1908.1.4 of this Code.

21.4.6 – Wall piers not designed as part of a moment frame in buildings assigned to Seismic Design Category C shall have transverse reinforcement designed to resist the shear forces determined from 21.3.3. Spacing of transverse reinforcement shall not exceed 8 inches (203 mm). Transverse reinforcement shall be extended beyond the pier clear height for at least 12 inches (305 mm).

Exceptions:

- 1. Wall piers that satisfy 21.13.
- 2. Wall piers along a wall line within a story where other shear wall segments provide lateral support to the wall piers and such segments have a total stiffness of at least six times the sum of the stiffnesses of all the wall piers.

21.4.7 – Wall segments with a horizontal length-to-thickness ratio less than 2.5 shall be designed as columns.

(j) Minimum reinforcement. Amend Section 1908.1.8 of the 2010 California Building Code to read as follows:

1908.1.8 ACI 318, Section 22.10. Delete ACI 318, Section 22.10, and replace with the following:

22.10 – Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

22.10.1 – Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

(a) Concrete used for fill shall comply with the requirement of Section 1909 of the California Building Code.

(b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.

(c) Plain concrete footings supporting walls are permitted provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. A minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

In detached one- and two-family dwellings three stories or less in height and constructed with stud-bearing walls, plain concrete footings with at least two continuous longitudinal reinforcing bars not smaller than No. 4 are permitted to have a total area of less than 0.002 times the gross cross-sectional area of the footing.

9.01.140 Steel construction provisions.

The following sections are amended per the above geological and topographical findings as follows:

(a) **Special Concentrically Braced Frames (SCBF).** Modify AISC 341 Part I, Section 13.2 by adding the following:

13.2f. Member Types. The use of rectangular HSS are not permitted for bracing members, unless filled solid with cement grout having a minimum compressive strength of two thousand five hundred psi at twenty-eight days. The effects of composite action in the filled composite brace shall be considered in the sectional properties of the system where it results in the more severe loading condition or detailing.

(b) **Consumables for welding.** Add Section 2204.1.1 to Chapter 22 of the 2010 California Building Code to read as follows:

2204.1.1 Consumables for welding.

2204.1.1.1 Seismic Force Resisting System (SFRS) welds. All welds used in members and connections in the SFRS shall be made with filler metals meeting the requirements specified in AWS D1.8 Clause 6.3. AWS D1.8 Clauses 6.3.5, 6.3.6, 6.3.7 and 6.3.8 shall apply only to demand critical welds.

2204.1.1.2 Demand critical welds. Where welds are designated as demand critical, they shall be made with filler metals meeting the requirements specified in AWS D1.8 Clause 6.3.

9.01.150 Wood construction.

The following sections are amended per the above geological and topographical findings as follows:

(a) **General fastener requirement.** Amend Section 2304.9.1 and Table 2304.9.1 of the 2010 California Building Code to read as follows:

2304.9.1 General fastener requirements. Connections for wood members shall be designed in accordance with the appropriate methodology in Section 2301.2. The number and size of fasteners connecting wood members shall not be less than that set forth in Table 2304.9.1. Staple fasteners in Table 2304.9.1 shall not be used to resist or transfer seismic forces in structures assigned to Seismic Design Category D, E or F.

(b) **Retaining Walls.** Section 2304.11.7 of the California Building Code is deleted in its entirety.

(c) **Hold-down Connectors.**

2305.5 Hold-down connectors. In Seismic Design Category D, E or F, hold-down connectors shall be designed to resist shear wall overturning moments using approved cyclic load values or 75 percent of the allowable seismic load values that do not consider cyclic loading of the product. Connector bolts into wood framing shall require steel plate washers on the post on the opposite side of the anchorage device. Plate size shall be a minimum of 0.229 inch by 3 inches by 3 inches (5.82 mm by 76 mm by 76 mm) in size. Hold-down connectors shall be tightened to finger tight plus one half (1/2) wrench turn just prior to covering the wall framing.

(d) **Shear Walls and Diaphragms.**

(1) **Plaster and Gypsum Shear Walls.** Shear capacities for walls sheathed with lath, plaster or gypsum board shall be in accordance with Table 2306.4.5 and shear walls sheathed with lath, plaster or gypsum board shall be constructed in accordance with Section 2306.4.5.1 of the building code. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7. The allowable shear values shown in Table 2306.4.5 for materials in category 1 are limited to ninety pounds per foot (1.31 kN/m); material in category 2 through 4 are limited to thirty pounds per foot (438 N/m).

(2) **Shear Wall Capacity.** Modify Section 2306.4.1 of the California Building Code as follows:

2306.4.1. Wood Structural Panel Shear Walls. The allowable shear capacities for wood structural panel shear walls shall be in accordance with Table 2306.4.1. These capacities are permitted to be increased forty percent for wind design. No increase for sixteen inch on center stud spacing shall be allowed as indicated in Footnote d of Table 2306.4.

For shear walls constructed with wood structural panels of three-ply construction, the maximum allowable shear shall be limited to two hundred pounds per foot. No value shall be given for wood structural sheathing applied over gypsum or plaster sheathing.

(3) **Construction.** Section 2305.3.3 of the California Building Code is modified as follows:

2305.3.3 Construction. Wood shear walls shall be constructed of wood structural panels manufactured with exterior glue and not less than four feet by eight feet (1,219 mm by 2,438 mm), except at boundaries and at changes in framing. All edges of all panels shall be supported by and fastened to framing members or blocking. Wood structural panel thickness for shear walls shall not be less than three eighths inch thick and studs shall not be spaced at more than sixteen inches on center.

(4) **Fasteners.** Fasteners for wood structural panel sheathing on shear walls and diaphragms shall be common nails with full heads unless otherwise approved. Mechanically driven common nails may be used when the fastener meets the same tolerances for head, shank and length allowed in ASTM 1667 for hand-driven nails. Staple fasteners shall not be used.

Nails shall be placed a minimum of one-half inch from the panel edges and a minimum of one-half inch from the edge of the connecting members for shear greater than three hundred pounds per foot.

(5) **Limits on Rotation of Diaphragms.** Except as permitted below, lumber and wood structural panel diaphragms shall not be considered as transmitting lateral forces by rotation.

Transfer of lateral forces by rotation will be permitted for one-story, detached residential garages or similar Group U, Division 1 wood-framed structures with a maximum depth normal to the open side of twenty-five feet and a maximum width of twenty-five feet provided the diaphragm is not constructed of straight sheathing.

(d) **(e) Conventional Light Frame Construction.**

(1) **Number of stories.** Modify Section 2308 of the California Building Code as follows:

2308.12.1 Number of stories. Structures of conventional light-frame construction shall not exceed one story in height in Seismic Design Category D or E.

(2) **Braced Wall Line Support.** Modify Section 2308.3.4 of the California Building Code as follows:

2308.3.4 Braced wall line support. Braced wall lines shall be supported by continuous foundations.

(3) **Braced Wall Line Sheathing.** Modify Footnotes b and c of Table 2308.12.4 of the California Building Code as follows:

(b) G-P = gypsum board, lath and plaster or gypsum sheathing boards attached to studs at maximum sixteen inches on center; S-W = wood structural panels of minimum 15/32 inch thickness attached to studs at maximum sixteen inches on center.

(c) Nailing as specified below shall occur at all panel edges at studs, at top and bottom plates and, where occurring, at blocking:

For one-half-inch gypsum board, 5d (0.113 inch diameter) cooler nails at seven inches on center;

For 5/8-inch gypsum board, No. 11 gage (0.120 inch diameter) at seven inches on center;

For gypsum sheathing board, one and three-quarter inches long by 7/16-inch head, diamond point galvanized nails at four inches on center;

For gypsum lath, No. 13 gage (0.092 inch) by one and one-eighth inches long, 19/64-inch head, plasterboard at five inches on center;

For Portland cement plaster, No. 11 gage (0.120 inch) by one and one-half inches long, 7/16-inch head at six inches on center;

For S-W sheathing shall be nailed with 10d common nails, at 6:6:12.

(4) **Braced Wall Line Attachment.** Modify Section 2308.12.5 of the California Building Code as follows:

2308.12.5 Attachment of sheathing. Fastening of braced wall panel sheathing shall not be less than that prescribed in Table 2308.12.4 or 2304.9.1. Wall sheathing shall not be attached to framing members by adhesives.

All braced wall panels shall extend to the roof sheathing and shall be attached to parallel roof rafters or blocking above with framing clips (18 gauge minimum) spaced at maximum twenty-four inches (6,096 mm) on center with four 8d common nails per leg (total eight 8d common nails per clip). Braced wall panels shall be laterally braced at each top corner and at maximum twenty-four inch (6,096 mm) intervals along the top plate of discontinuous vertical framing.

(f) **Wood used in retaining wall.** Amend Section 2304.11.7 of the 2010 California Building Code to read as follows:

2304.11.7 Wood used in retaining walls and cribs. Wood installed in retaining or crib walls shall be preservative treated in accordance with AWP A U1 (Commodity Specifications A or F) for soil and fresh water use. Wood shall not be used in retaining or crib walls for structures assigned to Seismic Design Category D, E or F.

(g) **Quality of nails.** Add Section 2305.4 to Chapter 23 of the 2010 California Building Code to read as follows:

2305.4 Quality of Nails. In Seismic Design Category D, E or F, mechanically driven nails used in wood structural panel shear walls shall meet the same dimensions as that required for hand-driven nails, including diameter, minimum length and minimum head diameter. Clipped head or box nails are not permitted in new construction. The allowable design value for clipped head nails in existing construction may be taken at no more than the nail-head-area ratio of that of the same size hand-driven nails.

(h) **Wood diaphragms.** Add Tables 2306.2.1(3) and 2306.2.1(4) to Chapter 23 of the 2010 California Building Code and amend Section 2306.2.1 of the 2010 California Building Code to read as follows:

2306.2.1 Wood structural panel diaphragms. Wood structural panel diaphragms shall be designed and constructed in accordance with AF&PA SDPWS. Wood structural panel diaphragms are permitted to resist horizontal forces using the allowable shear capacities set forth in Table 2306.2.1(1) or 2306.2.1(2). For structures assigned to Seismic Design Category D, E or F, the allowable shear capacities shall be set forth in Table 2306.2.1(3) or 2306.2.1(4). The allowable shear capacities in Table 2306.2.1(1) or 2306.2.1(2) are permitted to be increased 40 percent for wind design.

Wood structural panel diaphragms fastened with staples shall not be used to resist seismic forces in structures assigned to Seismic Design Category D, E or F.

Exception: Staples may be used for wood structural panel diaphragms when the allowable shear values are substantiated by cyclic testing and approved by the building official.

Wood structural panel diaphragms used to resist seismic forces in structures assigned to Seismic Design Category D, E or F shall be applied directly to the framing members.

Exception: Wood structural panel diaphragm is permitted to be fastened over solid lumber planking or laminated decking, provided the panel joints and lumber planking or laminated decking joints do not coincide.

TABLE 2306.2.1(3)

**ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS
WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE^a FOR SEISMIC LOADING¹**

FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F

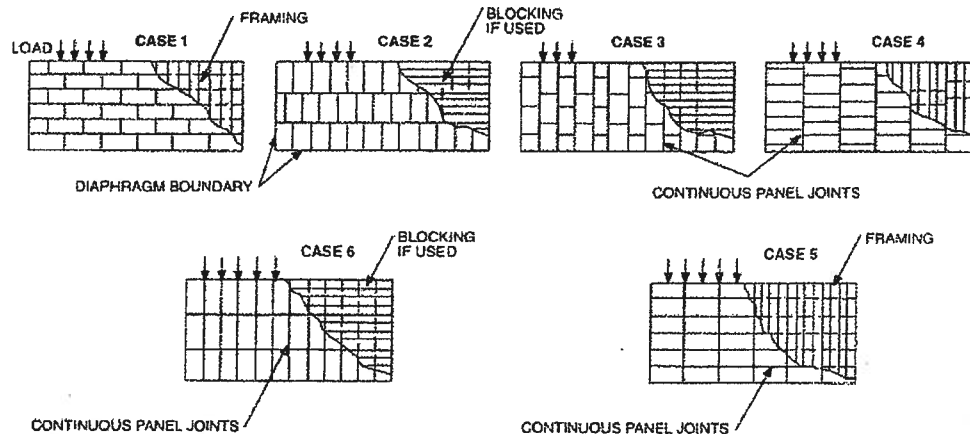
PANEL GRADE	COMMON NAIL SIZE	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM NOMINAL WIDTH OF FRAMING MEMBERS AT ADJOINING PANEL EDGES AND BOUNDARIES ^a (inches)	BLOCKED DIAPHRAGMS				UNBLOCKED DIAPHRAGMS	
					Fastener spacing (inches) at diaphragm boundaries (all cases) at continuous panel edges parallel to load (Cases 3, 4), and at all panel edges (Cases 5, 6) ^b				Fastener spaced 6" max. at supported edges ^b	
					6	4	2 1/2	2	Case 1 (No unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5 and 6)
					Fastener spacing (inches) at other panel edges (Cases 1, 2, 3 and 4) ^b					
					6	4	2 1/2	2		
Structural I Grades	8d (2 1/2" x 0.131")	1 3/8	3/8	2	270	360	530	600	240	180
				3	300	400	600	675	265	200
	10d (3" x 0.148")	1 1/2	15/32	2	320	425	640	730	285	215
				3	360	480	720	820	320	240
Sheathing, single floor and other grades covered in DOC PS1 and PS2	6d (2" x 0.113")	1 1/4	3/8	2	185	250	375	420	165	125
				3	210	280	420	475	185	140
	8d (2 1/2" x 0.131")	1 3/8		2	240	320	480	545	215	160
				3	270	360	540	610	240	180
	8d (2 1/2" x 0.131")	1 3/8	7/16	2	255	340	505	575	230	170
				3	285	380	570	645	255	190
	8d (2 1/2" x 0.131")	1 3/8	15/32	2	270	360	530	600	240	180
				3	300	400	600	675	265	200
	10d (3" x 0.148")	1 1/2		2	290	385	575	655	255	190
				3	324	430	650	735	290	215
	10d (3" x 0.148")	1 1/2	19/32	2	320	425	640	730	285	215
				3	360	480	720	820	320	240

ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL

PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS FIR-LARCH,

OR SOUTHERN PINE^a FOR SEISMIC LOADING¹

FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F



For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

- For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. (2) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = $[1 - (0.5 - SG)]$, where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.
- Space fasteners maximum 12 inches o.c. along intermediate framing members (6 inches o.c. where supports are spaced 48 inches o.c.).

- c. Framing at adjoining panel edges shall be 3 inches nominal or thicker, and nails at all panel edges shall be staggered where panel edge nailing is specified at 2 ½ inches o.c. or less.
- d. Framing at adjoining panel edges shall be 3 inches nominal or thicker, and nails at all panel edges shall be staggered where both of the following conditions are met: (1) 10d nails having penetration into framing of more than 1 ½ inches and (2) panel edge nailing is specified at 3 inches o.c. or less.
- e. The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
- f. For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

TABLE 2306.2.1(4)

**ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED
DIAPHRAGMS UTILIZING MULTIPLE ROWS OF FASTENERS (HIGH LOAD DIAPHRAGMS) WITH
FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE^a FOR SEISMIC LOADING^{b,4,9}**

FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F

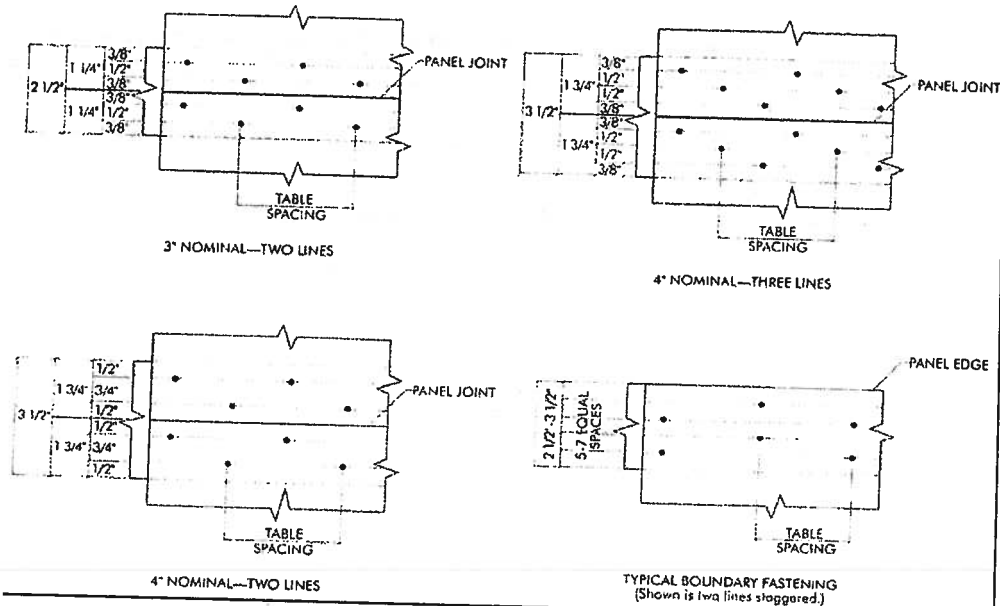
PANEL GRADE ^c	COMMON NAIL SIZE	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM NOMINAL WIDTH OF FRAMING MEMBERS AT ADJOINING PANEL EDGES AND BOUNDARIES ^d (inches)	LINES OF FASTENERS	BLOCKED DIAPHRAGMS						
						Cases 1 and 2 ^e						
						Fastener Spacing Per Line at Boundaries (inches)						
						4		2 1/2				
						Fastener Spacing Per Line at Other Panel Edges (inches)						
						6	4	4	3			
Structural I grades	10d common nails	1 1/2	15/32	3	2	605	815	875	1,150			
				4	2	700	915	1,005	1,290			
				4	3	875	1,220	1,285	1,395			
			19/32	3	2	670	880	965	1,255			
				4	2	780	990	1,110	1,440			
				4	3	965	1,320	1,405	1,790			
			23/32	3	2	730	955	1,050	1,365			
				4	2	855	1,070	1,210	1,565			
				4	3	1,050	1,430	1,525	1,800			
			Sheathing, single floor and other grades covered in DOC PS1 and PS2	10d common nails	1 1/2	15/32	3	2	525	725	765	1,010
							4	2	605	815	875	1,105
							4	3	765	1,085	1,130	1,195
19/32	3	2				650	860	935	1,225			
	4	2				755	965	1,080	1,370			
	4	3				935	1,290	1,365	1,485			
23/32	3	2				710	935	1,020	1,335			
	4	2				825	1,050	1,175	1,445			
	4	3				1,020	1,400	1,480	1,565			

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

- For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. (2) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = $[1 - (0.5 \cdot SG)]$, where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.
- Fastening along intermediate framing members: Space fasteners a maximum of 12 inches on center, except 6 inches on center for spans greater than 32 inches.
- Panels conforming to PS1 or PS 2.
- This table gives shear values for Cases 1 and 2 as shown in Table 2306.2.1(3). The values shown are applicable to Cases 3, 4, 5 and 6 as shown in Table 2306.2.1(3), providing fasteners at all continuous panels edges are spaced in accordance with the boundary fastener spacing.
- The minimum nominal depth of framing members shall be 3 inches nominal. The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
- High load diaphragms shall be subject to special inspection in accordance with Section 1704.6.1.
- For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS UTILIZING MULTIPLE ROWS OF FASTENERS (HIGH LOAD DIAPHRAGMS) WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE^a FOR SEISMIC LOADING^{b,1,9}

FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F



(I) **Wood shear walls.** Add Table 2306.3(2) to Chapter 23 of the 2010 California Building Code and amend Section 2306.3 and Table 2306.3 of the 2010 California Building Code to read as follows:

2306.3 Wood structural panel shear walls. Wood structural panel shear walls shall be designed and constructed in accordance with AF&PA SDPWS. Wood structural panel shear walls are permitted to resist horizontal forces using the allowable shear capacities set forth in Table 2306.3(1). For structures assigned to Seismic Design Category D, E or F, the allowable shear capacities shall be set forth in Table 2306.3(2). The allowable shear capacities in Table 2306.3(1) are permitted to be increased 40 percent for wind design.

Wood structural panel shear walls used to resist seismic forces in structures assigned to Seismic Design Category D, E or F shall not be less than 4 feet by 8 feet (1219 mm by 2438 mm), except at boundaries and at changes in framing. Wood structural panel thickness for shear walls shall not be less than 3/8 inch thick and studs shall not be spaced at more than 16 inches on center.

The maximum allowable shear value for three-ply plywood resisting seismic forces in structures assigned to Seismic Design Category D, E or F is 200 pounds per foot (2.92 kN/m). Nails shall be placed not less than 1/2 inch (12.7 mm) in from the panel edges and not less than 3/8 inch (9.5 mm) from the edge of the connecting members for shear greater than 350 pounds per foot (5.11 kN/m). Nails shall be placed not less than 3/8 inch (9.5 mm) from panel edges and not less than 1/4 inch (6.4 mm) from the edge of the connecting members for shears of 350 pounds per foot (5.11 kN/m) or less.

Wood structural panel shear walls used to resist seismic forces in structures assigned to Seismic Design Category D, E or F shall be applied directly to the framing members.

TABLE 2306.3(1)

**ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS
WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE^a FOR WIND OR SEISMIC
LOADING^{b, h, i, j, l, m, n}**

TABLE 2306.3(2)

**ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS
WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE^a FOR SEISMIC LOADING^{b, h, i, k, l}**

FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F

For SI: 1 inch = 25.4 mm, 1 foot = 25.4 mm, 1 pound per foot = 14.5939 N/m.

- a. For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. (2) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = $[1 - (0.5 - SG)]$, where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.

PANEL GRADE	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	ALLOWABLE SHEAR VALUE FOR SEISMIC FORCES PANELS APPLIED DIRECTLY TO FRAMING				
			COMMON NAIL SIZE	Fastener spacing at panel edges (inches)			
				6	4	3	2 ^e
Structural I sheathing	3/8	1 3/8	8d (2 1/4"x0.131" common)	200	200	200	200
	7/16	1 3/8	8d (2 1/4"x0.131" common)	255	395	505	670
	15/32	1 3/8	8d (2 1/4"x0.131" common)	280	430	550	730
		1 1/2	10d (3"x0.148" common)	340	510	665	870
Sheathing, plywood siding ^g except Group 5 Species	3/8 ^c	1 3/8	8d (2 1/4"x0.113")	160	200	200	200

- b. Panel edges backed with 2-inch nominal or thicker framing. Install panels either horizontally or vertically. Space fasteners maximum 6 inches on center along intermediate framing members for 3/8-inch and 7/16-inch panels installed on studs spaced 24 inches on center. For other conditions and panel thickness, space fasteners maximum 12 inches on center on intermediate supports.
- c. 3/8-inch panel thickness or siding with a span rating of 16 inches on center is the minimum recommended where applied direct to framing as exterior siding. For grooved panel siding, the nominal panel thickness is the thickness of the panel measured at the point of nailing.
- d. Allowable shear values are permitted to be increased to values shown for 15/32-inch sheathing with same nailing provided (a) studs are spaced a maximum of 16 inches on center, or (b) panels are applied with long dimension across studs.
- e. Framing at adjoining panel edges shall be 3 inches nominal or thicker, and nails shall be staggered where nails are spaced 2 inches on center or less.
- f. Framing at adjoining panel edges shall be 3 inches nominal or thicker, and nails shall be staggered where both of the following conditions are met: (1) 10d (3"x0.148") nails having penetration into framing of more than 1-1/2 inches and (2) nails are spaced 3 inches on center or less.
- g. Values apply to all-veneer plywood. Thickness at point of fastening on panel edges governs shear values.
- h. Where panels applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset to fall on different framing members. Or framing shall be 3-inch nominal or thicker at adjoining panel edges and nails at all panel edges shall be staggered.
- i. Where shear design values exceed 350 pounds per linear foot, all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch nominal member, or two 2-inch nominal members fastened together in accordance with Section 2306.1 to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered at all panel edges. See Section 4.3.6.1 and 4.3.6.4.3 of AF&PA SDPWS for sill plate size and anchorage requirements.
- j. Galvanized nails shall be hot dipped or tumbled.

- k. For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.
- l. The maximum allowable shear value for three-ply plywood resisting seismic forces is 200 pounds per foot (2.92 kn/m).

(j) Other shear walls. Amend Section 2306.7 of the 2010 California Building Code to read as follows:

2306.7 Shear walls sheathed with other materials. Shear walls sheathed with portland cement plaster, gypsum lath, gypsum sheathing or gypsum board shall be designed and constructed in accordance with AF&PA SDPWS. Shear walls sheathed with these materials are permitted to resist horizontal forces using the allowable shear capacities set forth in Table 2306.7. Shear walls sheathed with portland cement plaster, gypsum lath, gypsum sheathing or gypsum board shall not be used to resist seismic forces in structures assigned to Seismic Design Category E or F.

Shear walls sheathed with lath, plaster or gypsum board shall not be used below the top level in a multi-level building for structures assigned to Seismic Design Category D.

(k) Brace wall line support. Amend Section 2308.3.4 of Chapter 23 of the 2010 California Building Code to read as follows:

2308.3.4 Braced wall line support. Braced wall lines shall be supported by continuous foundations.

Exception: For structures with a maximum plan dimension not over 50 feet (15240 mm), continuous foundations are required at exterior walls only for structures not assigned to Seismic Design Category D, E or F.

(l) Concrete or masonry. Amend Section 2308.12.2 of Chapter 23 of the 2010 California Building Code to read as follows:

2308.12.2 Concrete or masonry. Concrete or masonry walls and stone or masonry veneer shall not extend above the basement.

Exception: Stone and masonry veneer is permitted to be used in the first story above grade plane in Seismic Design Category D, provided the following criteria are met:

1. Type of brace in accordance with Section 2308.9.3 shall be Method 3 and the allowable shear capacity in accordance with Table 2306.4.1 shall be a minimum of 350 plf (5108 N/m).
2. The bracing of the first story shall be located at each end and at least every 25 feet (7620 mm) o.c. but not less than 45 percent of the braced wall line.
3. Hold-down connectors shall be provided at the ends of braced walls for the first floor to foundation with an allowable design of 2,100 pounds (9341 N).
4. Cripple walls shall not be permitted.
5. Anchored masonry and stone wall veneer shall not exceed 5 inches (127 mm) in thickness, shall conform to the requirements of Chapter 14 and shall not extend more than 5 feet (1524 mm) above the first story finished floor. The height extending above the first story finished floor may be greater than 5 feet (1524mm) provided it is designed by a registered design professional and approved by the Building Officer.

(m) Braced wall sheathing. Amend Section 2308.12.4 and Table 2308.12.4 of the 2010 California Building Code to read as follows:

2308.12.4 Braced wall line sheathing. Braced wall lines shall be braced by one of the types of sheathing prescribed by Table 2308.12.4 as shown in Figure 2308.9.3. The sum of lengths of braced wall panels at each braced wall line shall conform to Table 2308.12.4. Braced wall panels shall be distributed along the length of the braced wall line and start at not more than 8 feet (2438 mm) from each end of the braced wall line. Panel sheathing joints shall occur over studs or blocking. Sheathing shall be fastened to studs, top and bottom plates and at panel edges occurring over blocking. Wall framing to which sheathing used for bracing is applied shall be nominal 2 inch wide [actual 1½ inch (38 mm)] or larger members and spaced a maximum of 16 inches on center.

Exception: Braced wall panels required by Section 2308.12.4 may be eliminated when all of the following requirements are met:

1. One story detached Group U occupancies not more than 25 feet in depth or length.

2. The roof and three enclosing walls are solid sheathed with 15/32 inch nominal thickness wood structural panels with 8d common nails placed 3/8 inches from panel edges and spaced not more than 6 inches on center along all panel edges and 12 inches on center along intermediate framing members. Wall openings for doors or windows are permitted provided a minimum 4 foot wide wood structural braced panel with minimum height to length ratio of 2 to 1 is provided at each end of the wall line and that the wall line be sheathed for 50% of its length.

Wood structural panel sheathing shall be a minimum of 15/32 inch thick nailed with 8d common placed 3/8 inches from panel edges and spaced not more than 6 inches on center and 12 inches on center along intermediate framing members.

Braced wall panel construction types shall not be mixed within a braced wall line.

TABLE 2308.12.4

WALL BRACING IN SEISMIC DESIGN CATEGORIES D AND E

(Minimum Length of Wall Bracing per each 25 Linear Feet of Braced Wall Line ^{a)}

CONDITION	SHEATHING TYPE ^b	$S_{DS} < 0.50$	$0.50 \leq S_{DS} < 0.75$	$0.75 \leq S_{DS} \leq 1.00$	$S_{DS} > 1.00$
One Story	G-P ^c	10 feet 8 inches	14 feet 8 inches	18 feet 8 inches	25 feet 0 inches
	S-W ^d	5 feet 4 inches	8 feet 0 inches	9 feet 4 inches	12 feet 0 inches

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

- Minimum length of panel bracing of one face of the wall for S-W sheathing shall be at least 4'-0" long or both faces of the wall for G-P sheathing shall be at least 8'-0" long; h/w ratio shall not exceed 2:1. For S-W panel bracing of the same material on two faces of the wall, the minimum length is permitted to be one-half the tabulated value but the h/w ratio shall not exceed 2:1 and design for uplift is required.
- G-P = gypsum board, portland cement plaster or gypsum sheathing boards; S-W = wood structural panels.
- Nailing as specified below shall occur at all panel edges at studs, at top and bottom plates and, where occurring, at blocking:

For 1/2-inch gypsum board, 5d (0.113 inch diameter) cooler nails at 7 inches on center;

For 5/8-inch gypsum board, No 11 gage (0.120 inch diameter) cooler nails at 7 inches on center;

For gypsum sheathing board, 1-3/4 inches long by 7/16-inch head, diamond point galvanized nails at 4 inches on center;

For gypsum lath, No. 13 gage (0.092 inch) by 1-1/8 inches long, 19/64-inch head, plasterboard at 5 inches on center;

For Portland cement plaster, No. 11 gage (0.120 inch) by 1 1/2 inches long, 7/16-inch head at 6 inches on center;

- S-W sheathing shall be a minimum of 15/32" thick nailed with 8d common placed 3/8 inches from panel edges and spaced not more than 6 inches on center and 12 inches on center along intermediate framing members.

(n) **Attachment of sheathing.** Amend Section 2308.12.5 of the 2010 California Building Code to read as follows:

2308.12.5 Attachment of sheathing. Fastening of braced wall panel sheathing shall not be less than that prescribed in Table 2308.12.4 or 2304.9.1. Wall sheathing shall not be attached to framing members by adhesives. Staple fasteners in Table 2304.9.1 shall not be used to resist or transfer seismic forces in structures assigned to Seismic Design Category D, E or F.

All braced wall panels shall extend to the roof sheathing and shall be attached to parallel roof rafters or blocking above with framing clips (18 gauge minimum) spaced at maximum 24 inches (6096 mm) on center with four 8d nails per leg (total eight 8d nails per clip). Braced wall panels shall be laterally braced at each top corner and at maximum 24 inch (6096 mm) intervals along the top plate of discontinuous vertical framing.

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SECTION 3. Chapter 9.03 of Title 9 of the Manhattan Beach Municipal Code is hereby added as follows:

Chapter 3. RESIDENTIAL CODE

9.03.010 Adoption of California Residential Code.

Pursuant to the provisions of Section 50022.1 to 50022.10, inclusive, of the Government Code of the State and subject to the particular additions, deletions and amendments set forth in this chapter, the rules, regulations, provisions and conditions set forth in that certain Code entitled "California Residential Code 2010 Edition," including Chapter 1, Division 2 and Appendix G therein contained, promulgated and published by the International Code Council and the California Building Standards Commission, one (1) full printed copy of which, printed as a Code in book form were by the Council ordered filed and which have been filed in the office of the City Clerk, expressly incorporated herein and made a part hereof as fully and for all intents and purposes as set forth herein at length, are hereby established and adopted as the rules, regulations, and provisions and conditions to be observed and followed in the construction, enlargement, alteration, movement, replacement, repair, equipment, use and occupancy, location, removal and demolition, conversion, use, height, area and maintenance of buildings, structures and improvements of every detached one-and two-family dwelling, townhouse not more than three stories above grade plane in height with a separate means of egress and structures accessory thereto in the city and related subjects, items and matters as set forth in said Code, within the City. Subject to the additions, deletions and amendments set forth in this chapter, said Code, with its said Chapter 1, Division 2 and Appendix G, is hereby established and adopted, and the same shall be designated, known and referred to as the "Residential Code" of and for the City.

9.03.020 Work exempt from permit.

R105.2, item 7 is hereby amended per administrative requirements as follows:

7. Prefabricated swimming pools that are less than 18 inches (457 mm) deep.

9.03.030 Expiration of plan review.

Section R105.3.2 is amended in its entirety for administrative requirements as follows:

Section R105.3.2 Time limitation of application. Applications for which no permit is issued within 180 days following the date of application shall expire by limitation and plans and other data submitted for review may thereafter be returned to the applicant or destroyed by the Building Official. The Building Official may extend the time for action by applicant for a period not exceeding 180 days upon written request by the applicant and justifiable cause demonstrated. No application shall be extended more than once. In order to renew action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee and plans shall be reviewed under the current codes and ordinances at the time of the new applications.

9.03.040 Permit Expiration.

Section R105.5 is hereby amended for administrative requirements as follows:

R105.5 Expiration. Every permit issued shall become invalid unless the work on the site authorized by such permit is commenced within 180 days after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 180 days after the work is commenced, or if the building or work authorized by such permit is not completed within 2 calendar years from the issuance date of the permit.

Before such work can be recommenced, a new permit, or a renewed permit as specified below, shall be first obtained. No permit shall be renewed more than once.

For permits where work has not commenced within 180 days from the date of such permit, a renewed permit may be obtained provided that: (1) no changes have been made or will be required in the original plans and specifications for such work; and (2) the expiration has not exceeded two years from the original issuance date.

For permits where work had commenced and was subsequently suspended or abandoned for a period exceeding 180 days, a renewed permit may be obtained provided that: (1) No changes have been made or will be required in the original plans and specifications for such work; and (2) the expiration has not exceeded two years from the issuance date and/or (3) Where construction has progressed and has

1 been approved to the point whereby only a final inspection(s) is required, a fee shall be determined
2 based on the number of estimated inspections, estimated staff time, and required meetings as
3 determined by the Building Official.

4 For permits that have exceeded two years beyond the issuance date, a new permit is required. The
5 applicant shall pay the fee based on the valuation of the uncompleted work required for a plan check
6 and a new permit and plans will be reviewed under the current codes and ordinances at the time of the
7 new applications.

8 Any permittee holding an unexpired permit may apply for an extension of the time within which work
9 under that permit may be continued when, for good and satisfactory reasons, the permittee is unable to
10 continue work within the time required by this section. The Building Official may extend the time for
11 action by the permittee for a period not exceeding six calendar months upon written request by the
12 permittee showing that circumstances beyond the control of the permittee have prevented action from
13 being taken. No permit shall be extended more than once.

14 If the owner or applicant fails to complete the construction work within the time required, the Building
15 Official is authorized to obtain the abatement of any unsafe condition or nuisance created by such
16 incomplete work. The City Attorney is authorized to file an action for the abatement of any such unsafe
17 condition or nuisance if required to do so by the Building Official.

18 **9.03.050 Fees.**

19 **Section R108.2 shall be amended in its entirety per administrative requirements as follows:**

20 **R108.2 Schedule of permit fees.** The fees shall be determined by the most current City Resolution of
21 Fees.

22 Plan Review Fees. When submittal documents are required by the building official, a plan review fee
23 shall be paid at the time of submitting the submittal documents for plan review. Said plan review fee
24 shall be determined by the most current City Resolution of Fees.

25 The plan review fees specified in this section are separate fees from the permit fees and are in addition
26 to the permit fees.

27 When submittal documents are incomplete or changed so as to require additional plan review or when
28 the project involves phased submittal items as defined in Section R106.3.3, an additional plan review
29 fee shall be charged as determined by the most current City Resolution of Fees.

30 **Section R108.3 shall be amended per administrative requirements as follows:**

31 **R108.3 Building permit valuations.** The applicant for a permit shall provide an estimated permit value
32 at time of application. Building permit valuations shall include total value of the work for which a permit is
being issued, such as electrical, gas, mechanical, plumbing equipment and other permanent systems,
including materials and labor. If, in the opinion of the building official, the valuation is underestimated on
the application, the permit shall be denied, unless the applicant can show detailed estimates to meet the
approval of the building official. Final building permit valuation shall be set by the building official.

33 **Section R108.6 shall be amended in its entirety per administrative requirements as follows:**

34 **R108.6 Work commencing before permit issuance.** Any person who commences any work on a
35 building, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary
36 permits shall be subject to a fee established by the Building Official and the most current Manhattan
37 Beach Resolution of Fees in addition to the required permit fees.

38 Investigation. Whenever any work for which a permit is required by this code has been commenced
39 without first obtaining said permit, a special investigation shall be made before a permit may be issued
40 for such work.

41 Investigation Fee. An investigation fee, in addition to the permit fee, shall be collected whether or not a
42 permit is then or subsequently issued. The investigation fee shall be equal up to the amount of the
43 permit fee required by this code as determined by the Building Official. The minimum investigation fee
44 shall be determined by the most current Resolution of Fees. The payment of such investigation fee
45 shall not exempt any person from compliance with all other provisions of this code nor from any penalty
46 prescribed by law.

9.03.060 Violation penalties.

Section R113.4 is amended for administrative requirements as follows:

Section R113.4. Violation penalties. Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or directive of the building official, or of a permit or certificate issued under the provisions of this code, shall be subject to the penalties as prescribed by law. Every person who willfully resists, delays, obstructs or interferes in any way with any City Building Inspector in the discharge or attempt to discharge any duty of his or her office or employment shall be guilty of a violation of this Chapter

Any person, firm, or corporation violating any of the provisions or failing to comply with any of the mandatory requirements of the ordinances of Manhattan Beach shall be guilty of a misdemeanor. Any person convicted of a misdemeanor under the ordinances of Manhattan Beach shall be punished by a fine of not more than one thousand dollars (\$1,000), or by imprisonment not to exceed six (6) months, or by both such fine and imprisonment. Each such person shall be guilty of a separate offense for each and every day during any portion of which any violation of any provision of the ordinances of Manhattan Beach is committed, continued, or permitted by any such person, and shall be punished accordingly.

9.03.070 Definitions.

Section R202 is amended for the above geographic and topographic requirements as follows:

Section R202. ADDITION. An extension or increase in floor area or height of a building or structure. Also, major demolition which includes the removal of roof framing, interior and exterior walls for the purpose of rebuilding with an increase in floor area, shall be considered a new building as determined by the building official.

Section R202 ATTIC, HABITABLE. This definition is deleted.

9.03.080 General Residential Structural Provisions.

The following sections are amended for the above geographic and topographic requirements as follows:

(a) Woodframe structures. Amend Section R301.1.3.2 of the 2010 California Residential Code to read as follows:

R301.1.3.2 Woodframe structures. The building official shall require construction documents to be approved and stamped by a California licensed architect or engineer for all dwellings of woodframe construction more than two stories and basement in height located in Seismic Design Category A, B or C. Notwithstanding other sections the law, the law establishing these provisions is found in Business and Professions Code Section 5537 and 6737.1.

The building official shall require construction documents and structural calculations to be approved and stamped by a California licensed architect or engineer for all dwellings of woodframe construction more than one story in height located in Seismic Design Category D₀, D₁, D₂ or E.

(b) Slopes steeper than 33-1/3 percent. Add Section R301.1.4 to the 2010 California Residential Code to read as follows:

R301.1.4 Seismic Design Provisions for Buildings Constructed On Or Into Slopes Steeper Than One Unit Vertical In Three Units Horizontal (33.3 Percent Slope).

The design and construction of new buildings and additions to existing buildings when constructed on or into slopes steeper than one unit vertical in three units horizontal (33.3 percent slope) shall comply with Section 1613.15 of the 2010 California Building Code.

(c) Irregular buildings. Amend Section R301.2.2.2.5 to the 2010 California Residential Code to read as follows:

R301.2.2.2.5 1. When exterior shear wall lines or braced wall panels are not in one plane vertically from the foundation to the uppermost story in which they are required.

2. When a section of floor or roof is not laterally supported by shear walls or braced wall lines on all edges.

3. When the end of a braced wall panel occurs over an opening in the wall below.

4. When an opening in a floor or roof exceeds the lesser of 12 feet (3658 mm) or 50 percent of the least floor or roof dimension.

5. When portions of a floor level are vertically offset.

6. When shear walls and braced wall lines do not occur in two perpendicular directions.

7. When stories above-grade partially or completely braced by wood wall framing in accordance with Section R602 or steel wall framing in accordance with Section R603 include masonry or concrete construction.

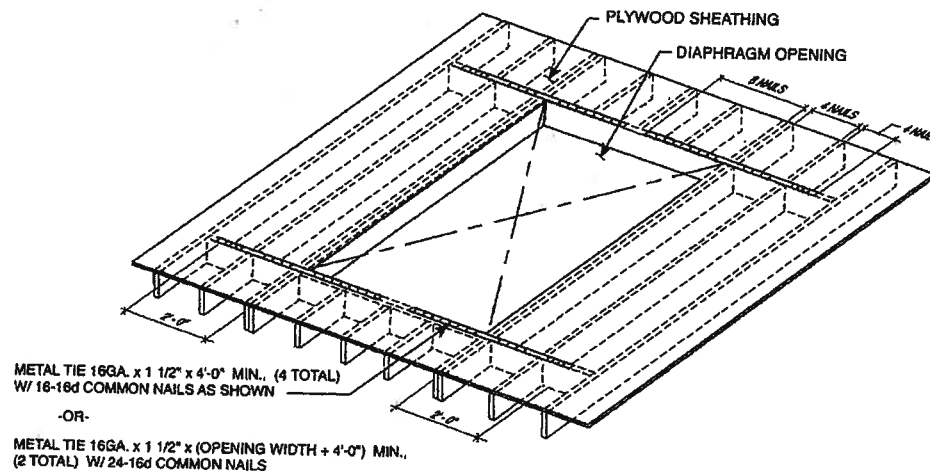
(d) **Application.** Amend Section R501.1 of the 2010 California Residential Code to read as follows:

R501.1 Application. The provision of this chapter shall control the design and construction of the floors for all buildings including the floors of attic spaces used to house mechanical or plumbing fixtures and equipment weighing less than 400 lbs and maximum height of 4 feet above the floor or attic level.

(e) **Openings in horizontal diaphragms.** Add Section R503.2.4 to Chapter 5 of the 2010 California Residential Code to read as follows:

R503.2.4 Openings in horizontal diaphragms. Openings in horizontal diaphragms with a dimension perpendicular to the joist that is greater than 4 feet (1.2 m) shall be constructed in accordance with Figure R503.2.4.

Figure R503.2.4



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Blockings shall be provided beyond headers.

b. Metal ties not less than 0.058 inch [1.47 mm (16 galvanized gage)] by 1.5 inches (38 mm) wide with eight 16d common nails on each side of the header-joist intersection. The metal ties shall have a minimum yield of 33,000 psi (227 MPa).




c. Openings in diaphragms shall be further limited in accordance with Section R301.2.2.2.5.



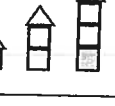
(f) **Bracing requirement.** Amend Table R602.10.1.2(2) of the 2010 California Residential Code to read as follows:

TABLE R602.10.1.2(2)^{a,b,c,d}

BRACING REQUIREMENTS BASED ON SEISMIC DESIGN CATEGORY

(AS A FUNCTION OF BRACED WALL LINE LENGTH)

SOIL CLASS D ^a WALL HEIGHT = 10 FT 10 PSF FLOOR DEAD LOAD 15 PSF ROOF/CEILING DEAD LOAD BRACED WALL LINE SPACING ≤ 25FT			MINIMUM TOTAL LENGTH (feet) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE			
Seismic Design Category (SDC)	Story Location	Braced Wall Line Length	Method LIB	METHODS DWB, SFB, GB, PBS, PCP, HPS	Method WSP	Continuous Sheathing
SDC Do or D ₁		10	NP	6.0	2.0	1.7
		20	NP	12.0	4.0	3.4
		30	NP	18.0	6.0	5.1
		40	NP	24.0	8.0	6.8
		50	NP	30.0	10.0	8.5
		10	NP	NP	4.5	3.8
		20	NP	NP	9.0	7.7
		30	NP	NP	13.5	11.5
		40	NP	NP	18.0	15.3
		50	NP	NP	22.5	19.1
		10	NP	NP	6.0	5.1
		20	NP	NP	12.0	10.2
		30	NP	NP	18.0	15.3
		40	NP	NP	24.0	20.4
		50	NP	NP	30.0	25.5

SOIL CLASS D ^a			MINIMUM TOTAL LENGTH (feet) OF BRACED WALL PANELS REQUIRED			
WALL HEIGHT = 10 FT			ALONG EACH BRACED WALL LINE			
10 PSF FLOOR DEAD LOAD						
15 PSF ROOF/CEILING DEAD LOAD						
BRACED WALL LINE SPACING < 25FT						
Seismic Design Category (SDC)	Story Location	Braced Wall Line Length	Method LIB	METHODS DWB, SFB,GB, PBS, PCP, HPS	Method WSP	Continuous Sheathing
SDC D ₂		10	NP	8.0	2.5	2.1
		20	NP	16.0	5.0	4.3
		30	NP	24.0	7.5	6.4
		40	NP	32.0	10.0	8.5
		50	NP	40.0	12.5	10.6
		10	NP	NP	5.5	4.7
		20	NP	NP	11.0	9.4
		30	NP	NP	16.5	14.0
		40	NP	NP	22.0	18.7
		50	NP	NP	27.5	23.1
		10	NP	NP	NP	NP
		20	NP	NP	NP	NP
		30	NP	NP	NP	NP
		40	NP	NP	NP	NP
		50	NP	NP	NP	NP

For SI: 1 foot = 304.8 mm, 1 pound per square foot = 47.89 Pa.






- Wall bracing lengths are based on a soil site class "D." Interpolation of bracing length between the S_{ds} values associated with the seismic design categories shall be permitted when a site-specific S_{ds} value is determined in accordance with Section 1613.5 of the California Building Code.
- Foundation cripple wall panels shall be braced in accordance with Section R602.10.9.
- Methods of bracing shall be as described in Sections R602.10.2, R602.10.4 and R602.10.5.
- Methods GB and PCP braced wall panel h/w ratio shall not exceed 1:1 in SDC D₀, D₁, and D₂. Methods DWB, SFB, PBS, and HPS are not permitted in SDC D₀, D₁, and D₂.

(g) **Intermittent Bracing Methods.** Amend Table R602.10.2 of the 2010 California Residential Code to read as follows:

TABLE R602.10.2

INTERMITTENT BRACING METHODS^a

8d common (2 1/2" x 0.131) nails at 6" spacing (panel edge) at 12" spacing (intermediate supports), 3/8" edge distance to panel edge

WSP	Wood structural panel (see Section R604)	15/32"		8d common (2 1/2" x 0.131) nails at 6" spacing (panel edge) at 12" spacing (intermediate supports), 3/8" edge distance to panel edge
SFB	Structural fiberboard sheathing	1/2" or 25/32" for maximum 16" stud spacing		1 1/2" galvanized roofing nails or 8d common (2 1/2" x 0.131) nails at 3" spacing (panel edges) at 6" spacing (intermediate supports)
GB	Gypsum board	1/2"		Nails or screws at 7" spacing at panel edges including top and bottom plates; for all braced wall panel locations for exterior sheathing nail or screw size, see Table R602.3.1; for interior gypsum board nail or screw size, see Table R702.3.5
PBS	Particleboard sheathing (see Section R605)	3/8" or 1/2" for maximum 16" stud spacing		1 1/2" galvanized roofing nails or 8d common (2 1/2" x 0.131) nails at 3" spacing (panel edges) at 6" spacing (intermediate supports)
PCP	Portland cement plaster	See Section R703.6 For maximum 16" stud spacing		1 1/2", 11 gage, 7/16" head nails at 6" spacing

a. Methods GB and PCP braced wall panel h/w ratio shall not exceed 1:1 in SDC D₀, D₁, and D₂. Methods LIB, DWB, SFB, PBS, HPS, and PFG are not permitted in SDC D₀, D₁, and D₂.

(h) **Alternate braced wall panel.** Amend Figure R602.10.3.2 of the 2010 California Residential Code to read as follows:

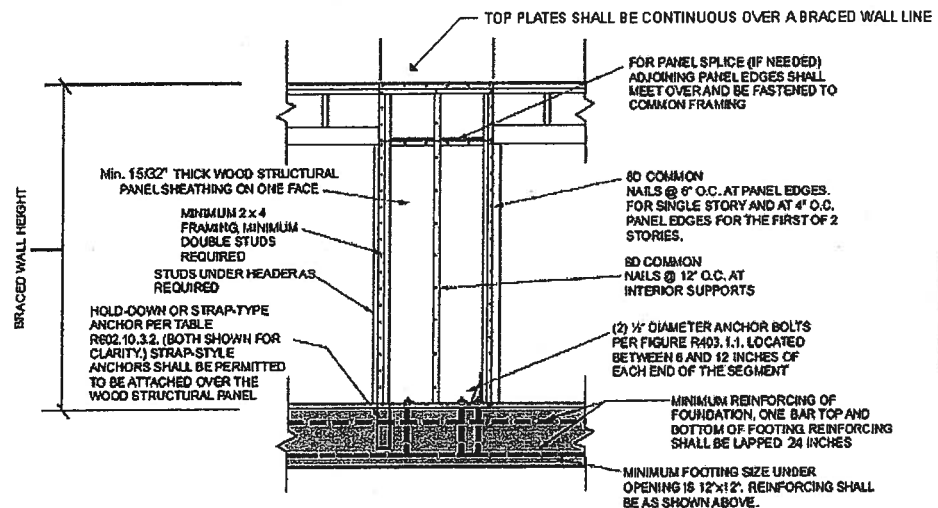


FIGURE R602.10.3.2
ALTERNATE BRACED WALL PANEL

(i) **Portal frame.** Amend Figure R602.10.3.3 of the 2010 California Residential Code to read as follows:

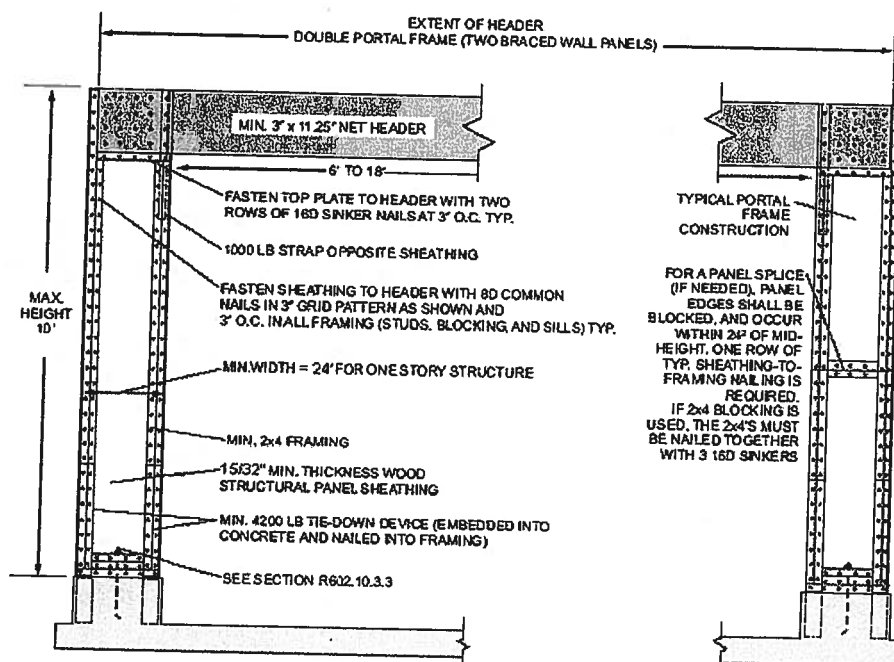


FIGURE R602.10.3.3

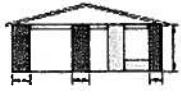

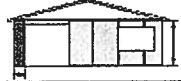
METHOD PFH: PORTAL FRAME WITH HOLD-DOWNS AT DETACHED GARAGE DOOR OPENINGS

(i) **Method PFH.** Amend Section R602.10.3.3 Item 1 of the 2010 California Residential Code to read as follows:

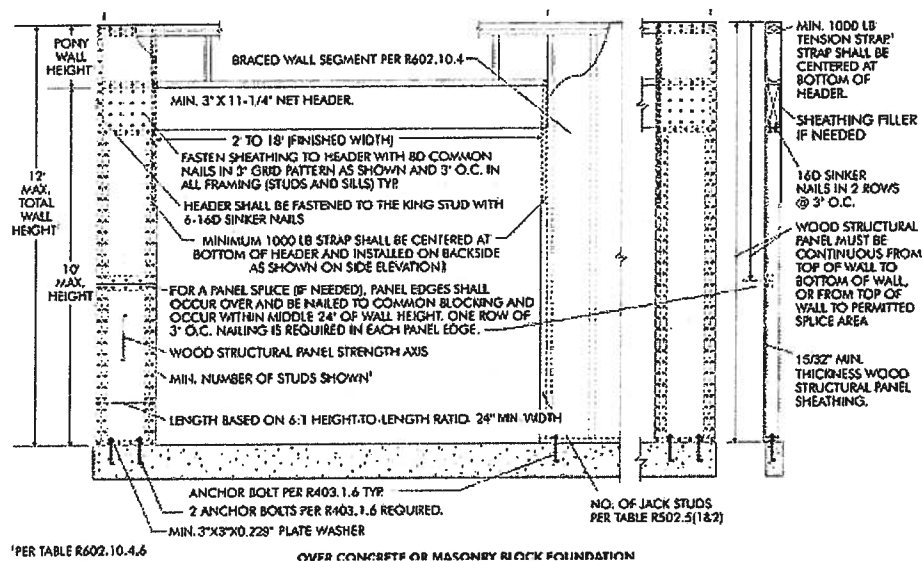
1. Each panel shall be fabricated in accordance with Figure R602.10.3.3. The wood structural panel sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure R602.10.3.3. A spacer, if used with a built-up header, shall be placed on the side of the built-up beam opposite the wood structural panel sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. One anchor bolt not less than 5/8-inch-diameter (16 mm) and installed in accordance with Section R403.1.6 shall be provided in the center of each sill plate. The hold-down devices shall be an embedded-strap type, installed in accordance with the manufacturer's recommendations. The panels shall be supported directly on a foundation that is continuous across the entire length of the braced wall line. The foundation shall be reinforced as shown on Figure R602.10.3.2. This reinforcement shall be lapped not less than 24 inches (610 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

(k) **Continuous sheathing.** Amend Table R602.10.4.1 of the 2010 California Residential Code to read as follows:

TABLE R602.10.4.1
CONTINUOUS SHEATHING METHODS

METHOD	MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA
CS-WSP	Wood structural panel	15/32"		8d common (2" x 0.113") nails at 6" spacing (panel edges) and at 12" spacing (intermediate supports)
CS-G	Wood structural panel adjacent to garage openings and supporting roof load only ^{a,b}	15/32"		See Method CS-WSP
CS-PF	Continuous portal frame	See Section R602.10.4.1.1		See Section R602.10.4.1.1

(l) **Method CS-PF.** Amend Figure R602.10.4.1.1 of the 2010 California Residential Code to read as follows:



(m) **Braced wall panel.** Delete Section R602.10.7.1 of the 2010 California Residential Code

(n) **Lateral support.** Amend Section R802.8 of the 2010 California Residential Code to read as follows:

R802.8 Lateral support. Roof framing members and ceiling joists having a depth-to-thickness ratio exceeding 2 to 1 based on nominal dimensions shall be provided with lateral support at points of bearing to prevent rotation. For roof rafters with ceiling joists attached per Table R602.3(1), the depth-to-thickness ratio for the total assembly shall be determined using the combined thickness of the rafter plus the attached ceiling joist.

(o) **Additional requirements.** Add Section R803.2.4 to Chapter 8 of the 2010 California Residential Code to read as follows:

R803.2.4 Openings in horizontal diaphragms. Openings in horizontal diaphragms shall conform with Section R503.2.4.

8.22.050 Residential foundations.

(a) Foundation application. Amend Section R401.1 of the 2010 California Residential Code to read as follows:

R401.1 Application The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for all buildings. In addition to the provisions of this chapter, the design and construction of foundations in areas prone to flooding as established by Table R301.2(1) shall meet the provisions of Section R322. Wood foundations shall be designed and installed in accordance with AF&PA PWF.

Exception: The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

1. In buildings that have no more than two floors and a roof.
2. When interior basement and foundation walls are constructed at intervals not exceeding 50 feet (15 240 mm).

Wood foundations in Seismic Design Category D₀, D₁ or D₂ shall not be permitted.

Exception: In non-occupied, single-story, detached storage sheds and similar uses other than carport or garage, provided the gross floor area does not exceed 200 square feet, the plate height does not exceed 12 feet in height above the grade plane at any point, and the maximum roof projection does not exceed 24 inches.

(b) Wood foundation walls. Amend Section R404.2 of the 2010 California Residential Code to read as follows:

R404.2 Wood foundation walls. Wood foundation walls shall be constructed in accordance with the provisions of Sections R404.2.1 through R404.2.6 and with the details shown in Figures R403.1(2) and R403.2(3). Wood foundation walls shall not be used for structures located in Seismic Design Category D₀, D₁, or D₂.

9.03.090 Roof Assemblies.

Amend the following sections for the above geographic and topographic requirements as follows:

Section R902.1. Roof covering materials. Roofs shall be covered with materials as set forth in Sections R904 and R905. A minimum Class A, or B shall be installed in area designated by this section. Classes A and B roofing required by this section to be listed shall be tested in accordance with UL 790 or ASTM E 108.

Section R902.1.3 Roof coverings in all other areas. The entire roof covering of every existing structure where more than 50 percent of total roof area is replaced within any one-year period, the entire roof covering of every new structure, and any roof covering applied in the alteration, repair or replacement of the roof covering that is at least Class B.

Delete the following Sections and Tables: Section R902.2 Fire-retardant-treated shingles and shakes, R905.7 Wood shingles, Table R905.7.5 Wood shingle weather exposure, Section R905.8 Wood shakes, Table R905.8.5 Wood shake material requirements, and Table R905.8.6 Wood shake weather exposure.

Section R907.1 General. Materials and methods of application used for re-covering or replacing an existing roof covering shall comply with the requirements of Chapter 9. Wood shakes and wood shingles re-roofs of entire structure are prohibited unless approved by the building official because of special circumstances.

9.03.100 Residential concrete and masonry chimneys.

Amend the following sections for the above geographic and topographic requirements as follows:

(a) **Vertical reinforcing.** Amend Section R1001.3.1 of the 2010 California Residential Code to read as follows:

R1001.3.1 Vertical reinforcing. For chimneys up to 40 inches (1016 mm) wide, four No. 4 continuous vertical bars adequately anchored into the concrete foundation shall be placed between wythes of solid masonry or within the cells of hollow unit masonry and grouted in accordance with Section R609. Grout shall be prevented from bonding with the flue liner so that the flue liner is free to move with thermal expansion. For chimneys more than 40 inches (1016 mm) wide, two additional No. 4 vertical bars adequately anchored into the concrete foundation shall be provided for each additional flue incorporated into the chimney or for each additional 40 inches (1016 mm) in width or fraction thereof.

9.03.110 Residential steel construction.

Amend the following sections for the above geographic and topographic requirements as follows:

(a) **Cold formed steel framing.** Add Section R301.2.2.3.5.1 to Section 301.2.2.3.5 of the 2010 California Residential Code to read as follows:

R301.1.2.2.3.5.1 AISI S230, Section B1. Modify AISI S230, Section B1 to read as follows:

Where No. 8 screws are specified, the required number of screws in a steel-to-steel connection shall be permitted to be reduced in accordance with the reduction factors in Table B1-1 when larger screws are used or when the sheets of steel being connected is thicker than 33 mils (0.84mm). When applying the reduction factor, the resulting number of screws shall be rounded up.

9.03.110 Residential wood construction.

Amend the following sections for the above geographic and topographic requirements as follows:

(a) **Fastener schedule.** Amend Lines 34 thru 37 of Table R602.3(1) of the 2010 California Residential Code to read as follows:

Other wall sheathing ^b				
34	$\frac{1}{2}$ " structural cellulose fiberboard sheathing	$\frac{1}{2}$ " galvanized roofing nail	3	6
35	$\frac{25}{32}$ " structural cellulose fiberboard sheathing	$\frac{3}{4}$ " galvanized roofing nail	3	6
36	$\frac{1}{2}$ " gypsum sheathing ^d	$\frac{1}{2}$ " galvanized roofing nail, $\frac{1}{4}$ " screws, Type W or S	7	7
37	$\frac{5}{8}$ " gypsum sheathing ^d	$\frac{3}{4}$ " galvanized roofing nail, $\frac{5}{8}$ " screws, Type W or S	7	7

(b) **Alternate attachment.** Amend Table R602.3(2) of the 2010 California Residential Code to read as follows:

Wood structural panels subfloor, roof and wall sheathing to framing and particleboard wall sheathing to framing ^f			
up to $\frac{1}{2}$	0.097 - 0.099 Nail $2\frac{1}{4}$	3	6
$\frac{19}{32}$ and $\frac{5}{8}$	0.113 Nail 2	3	6
	0.097 - 0.099 Nail $2\frac{1}{4}$	4	6
$\frac{23}{32}$ and $\frac{3}{4}$	0.097 - 0.099 Nail $2\frac{1}{4}$	4	6
1	0.113 Nail $2\frac{1}{4}$	3	6

Floor underlayment: plywood-hardboard-particleboard ^f			
Plywood			
$\frac{1}{4}$ and $\frac{5}{16}$	$1\frac{1}{4}$ ring or screw shank nail-minimum $12\frac{1}{2}$ ga. (0.099") shank diameter	3	6
$\frac{11}{32}$, $\frac{3}{8}$, $\frac{15}{32}$, and $\frac{1}{2}$	$1\frac{1}{4}$ ring or screw shank nail-minimum $12\frac{1}{2}$ ga. (0.099") shank diameter	6	6 ^g
$\frac{19}{32}$, $\frac{5}{8}$, $\frac{23}{32}$, and $\frac{3}{4}$	$1\frac{1}{2}$ ring or screw shank nail-minimum $12\frac{1}{2}$ ga. (0.099") shank diameter	6	6

(c) **Joist heel joint connection.** Add Footnote "i" to Table R802.5.1(9) of the 2010 California Residential Code to read as follows:

i. Edge distances, end distances and spacings for nails shall be sufficient to prevent splitting of the wood.

(d) **Design of wood trusses.** Amend Section R802.10.2 of the 2010 California Residential Code to read as follows:

R802.10.2 Design. Wood trusses shall be designed in accordance with accepted engineering practice. The design and manufacture of metal-plate-connected wood trusses shall comply with ANSI/TPI 1. The truss design drawings shall be prepared by a registered professional.

9.03.060 Violation penalties.

Appendix G Section AG 101.1 is amended for administrative requirements as follows:

Appendix G Section AG 101.1 General. The provisions of this appendix shall control the design and construction of swimming pools, spas and hot tubs installed in or on the lot of a one- or two- family dwelling. These must also meet the most current Manhattan Municipal Code requirements.

SECTION 4. Chapter 9.12 of Title 9 of the Manhattan Beach Municipal Code is hereby amended in its entirety as follows:

Chapter 12. Electrical Code.

9.12.010 Adoption of California Electrical Code.

Pursuant to the provisions of Section 50022.1 to 50022.10, inclusive of the Government Code of the State and subject to the particular additions, amendments, and deletions set forth in this chapter, the rules, regulations, provisions, and conditions set forth in those certain Codes entitled "California Electrical Code, 2010 Edition ("NEC"), " including the Appendices and Tables therein contained, promulgated and published by the National Fire Protection Association of Quincy, Massachusetts and the California Building Standards Commission, including the appendices and tables therein contained,

one (1) full printed copy of which, printed as a Code in book form, was by the Council ordered filed and which has been actually filed in the office of the City Clerk, expressly incorporated herein and made a part hereof as fully and for all intents and purposes as though set forth herein at length, are hereby established and adopted as the rules, regulations, standards, provisions, and conditions to be observed and followed in the installation, arrangement, alteration, repair, use, and operation of electrical wire connections, fixtures, and other electrical appliances, and subject to the additions, amendments, and deletions set forth in this chapter, said Code with its Annexes and Tables, containing said rules, regulations, standards, provisions, and conditions, is hereby established and adopted, and the same shall be designated, known, and referred to as the "Electrical Code" of and for the City.

9.12.020 Fees.

California Electrical Code Sections 89.108.4.2 is hereby amended to add the following paragraph for administrative requirements as follows:

ELECTRICAL PERMIT AND ELECTRICAL PLAN REVIEW FEES. Any person desiring an electrical permit shall, at the time of filing an application therefor, pay to the City fees established by the Council under the Fee Resolution in accordance to the building permit and building plan review fees or may be based on an hourly rate as established in the applicable fee resolution.

9.12.030 Plans and specifications.

California Electrical Code Section 89.108.4.3 is hereby amended to add the following paragraphs for administrative requirements:

Electrical Plans and Specifications. When required by the Building Official, electrical plans, specifications, and applications shall be filed and approved by the Building Official prior to any electrical wiring or installations.

Electrical plans and specifications for all occupancies listed in the current adopted Uniform Building Code shall be prepared by an Electrical Engineer who possesses a valid Professional Electrical Engineering Registration issued pursuant to and in accordance with the laws of the State of California. All electrical sheets shall be wet stamped and have a wet signature by the licensed Professional Electrical Engineer.

Residential electrical plans shall include but are not limited to load schedule, wiring diagrams, homeruns, wire sizes, location and size of service panels and subpanels, method of grounding of service. The following must be included:

- (1) All Commercial and Industrial tenant improvements, additions, and service changes.
- (2) The mixed Occupancy of R-2 and U Occupancy where U Occupancy is between 1000 and 3000 square feet and over 200 amps.
- (3) R-3 Occupancy and U Occupancy when service is over 200 amps.

"Green Sheet" Plans shall be prepared and submitted by a licensed electrical contractor and/or owner/builder under the following conditions:

- (1) R-3 Occupancy including new construction, additions, and service changes.
- (2) U Occupancy (which is part of the R -3 Occupancy), which does not exceed 1000 square feet in area.

Exception: The Building Official may waive the submission of electrical plans, calculations, etc., if it is found that the nature of the work applied for is such that reviewing of electrical plans is not necessary to obtain compliance with this Code.

9.12.040 Penalties.

California Electrical Code Section 89.108.3.2.6 is hereby added for administrative requirements.

- (a) Any person, firm, or corporation violating any of the provisions of this Chapter, or of the Electrical Code adopted thereby, shall be guilty of a misdemeanor and upon conviction of any such violation such person shall be punishable by a fine of not more than one thousand dollars

or by imprisonment for a period of not to exceed six months, or by both such fine and imprisonment in the discretion of the Court.

- (b) Every such person shall be deemed guilty of a separate offense for each and every day during which, or during any portion of which, any of the provisions of this Code are violated, committed, continued, or permitted by such person, and shall be punishable therefore as herein provided.

9.12.050 Services undergrounding.

California Electrical Code Section 230-30 is amended per the above geological and topographical findings by the addition of subsection (5) to read as follows:

(5)Underground Utilities Required. All new buildings and structures in the City of Manhattan Beach shall provide underground electrical and communication service laterals on the premises to be served, as hereinafter required.

(a) New Construction. All electrical, telephone, cable television system, and similar service wires and cables which provide direct service to new main buildings, new accessory buildings, and structures, shall be installed underground in compliance with all applicable building and electrical codes, safety regulations, and orders, rules of the Public Utilities Commission of the State of California, and specifications or standards of the Public Works Department.

(b) Existing Buildings. Such service wires and cables shall also be placed underground when existing buildings, existing accessory buildings, and structures are repaired, remodeled, altered or expanded, except where the value, as determined for building permit fee purposes, by the Building Code of the City of Manhattan Beach, of such repairs or remodeling, or expansion does not exceed fifty percent (50%) of the value of the building or structure as determined by the California Building Code.

(c) Wiring between the accessory buildings and the main buildings shall be in an underground system.

(d) Responsibility for Compliance. The Contractor and Owner are jointly and severally responsible for complying with the requirements of this section and shall make the necessary arrangements with the utility companies servicing the structure for the installation of such facilities.

If a proposed building or structure would create a situation which would make unreasonable, impractical, or physically impossible the continuance of overhead utility service to an existing adjacent property (or properties), then the Contractor and owner of the proposed building or structure shall be responsible for relocating such utilities per utility company specifications, and shall be installed underground in compliance with all applicable codes, safety regulations, and orders, rules of the Public Utilities Commission of the State of California, and specifications or standards of the Public Works Department.

(e) Appurtenances. For the purpose of this section, appurtenances and associated equipment such as, but not limited to, service mounted transformers, pedestal mounted terminal boxes and meter cabinets may be placed above ground if permitted by and in accordance with the rules of the State Public Utilities Commission.

(f) Waiver of Underground Requirements. If topographical, soil, or any other conditions make such underground installations unreasonable or impractical, a waiver of the requirements of this section may be granted by the Building Official, (a written approval from Southern California Edison is required when necessary) subject to the installation of all necessary electrical conduits, terminal boxes and other appurtenances as may be required to provide underground service in the future.

If the utility pole(s) from which underground service would be provided are not situated on the same side of the public street as the permittee, or not within five (5) feet of the area enclosed by the extension of the side property lines to said public street, the permittee may have the alternative of installing all conduit, wires, pullboxes, electrical panel and other appurtenances which may be required for future underground utility services from the structure to an approved location on the property line of the parcel which will facilitate future underground service; and that the property may continue to be served by overhead wires until said future underground utility conversion.

If a building or structure is served by the rear from utilities not located in the public right-of-way, the permittee may have the alternative of installing all conduit, wires, pullboxes, electrical panel, and other appurtenances which may be required for future underground utility services from the building or structure to an approved location on the property line of the parcel which will facilitate future underground service; and that the property may continue to be served by overhead wires until said future underground utility conversion.

Exceptions: This section shall not apply to:

- (i) Utility lines which do not provide service to the area being developed.
- (ii) Detached dwelling units with separate utility services which are not the subject of a common including permit.

9.12.060 Service Equipment.

California Electrical Code Section 230-62 is amended per the above climatic findings by the addition of subsection (c) as follows:

(C) Single Family Dwellings, Multi-family Industrial and Commercial Structures Service Equipment. The minimum capacity of the service equipment for a single family dwelling, industrial, and commercial structures shall be as follows:

- (1) A service entry conduit not less than 1-1/2" in diameter of rigid galvanized steel, except 100 amp service may be 1-1/4" rigid galvanized steel.

9.12.070 Grounding and bonding.

California Electrical Code Section 250-53D. 2. is amended to add the following paragraph per the above climatic findings to add subsection (e) as follows:

Supplemental electrode required. All services shall have a minimum 5/8" by 8-foot long ground rod added, if not existing, when a new electrical service, water main or repipe is installed.

9.12.080 Conductor material.

California Electrical Code Section 310-2(B) is amended per the above climatic findings as follows:

- (B) Conductor material. Conductors in this article shall be of copper unless otherwise approved by the Building Official.

9.12.090 Aluminum conductor material.

California Electrical Code Section 310-14 per the above climatic findings is deleted.

9.12.100 Ampacities of various conductors.

California Electrical Code Tables 310-16, 310-17, 310-18, 310-19, including Notes to said Tables, are amended per the above climatic findings to delete all references to aluminum or copper-clad aluminum.

SECTION 5. Chapter 9.24 of Title 9 of the Manhattan Beach Municipal Code is hereby amended for the climatic findings above as follows:

Chapter 24. REPORT OF RESIDENTIAL BUILDING RECORDS

9.24.040 shall be amended for the climatic findings above to add:

Retrofit requirements upon sale of residential real property. All existing residential buildings shall, at the time of sale before change of ownership, be retrofitted, if not already so, with high efficiency toilets, that meet the most current U.S. Environmental Protection Agency Water Sense program requirements, with a minimum standard of at least 1.28 gallons per flush. See also Chapter 9.36.110 Water Efficiency. Retrofits shall be in accordance with the toilet replacement procedure of the Community Development Department. Exceptions to this requirement shall be listed in the toilet replacement procedure or as determined by the Director of Community Development Department.

SECTION 6. Chapter 9.32 of Title 9 of the Manhattan Beach Municipal Code is hereby amended per administrative requirements in its entirety as follows:

Chapter 32. PLUMBING CODE

9.32.010 Adoption of California Plumbing Code.

Pursuant to the provisions of Section 50022.1 to 50022.10, inclusive, of the Government Code of the State and subject to the particular additions, deletions and amendments set forth in this chapter, the rules, regulations, provisions and conditions set forth in that certain Code entitled "California Plumbing Code 2010 Edition," including the Appendices therein contained, promulgated and published by the International Association of Plumbing and Mechanical Officials, one (1) full printed copy of which, printed as a Code in book form were by the Council ordered filed and which have been filed in the office of the City Clerk, expressly incorporated herein and made a part hereof as fully and for all intents and purposes as set forth herein at length, are hereby established and adopted as the rules, regulations, and provisions and conditions to be observed and followed in the moving, removal, demolition, condemnation, maintenance and use of plumbing, house drainage, house sewers, sanitary sewers, cesspools, septic tanks, gas piping, gas water heater vents, swimming pools, and gas outlets for swimming pool heaters and related subjects, items and matters as set forth in said Code, within the City. Subject to the additions, deletions and amendments set forth in this chapter, said Code, with its said specified sections of Chapter 1, Division II, Appendices B, G, I, and L, is hereby established and adopted, and the same shall be designated, known and referred to as the "Plumbing Code" of and for the City.

9.32.020 Violations and penalties.

Adopt Chapter 1, Division II, to specifically add and amend Sections 102.3.1 and 102.3.2 of the California Plumbing Code are for administrative requirements as follows:

Any person, firm or corporation violating any provisions of this Code shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine of not to exceed One thousand and no/100th (\$1,000.00) Dollars or by imprisonment in the County Jail of the County of Los Angeles, California, for not to exceed six (6) months, or by both such fine and imprisonment. Each separate day or any portion thereof during which any violation of this Code occurs or continues shall be deemed to constitute a separate offense, and upon conviction thereof shall be punishable as herein provided.

The issuance or granting of a permit or approval of plans and specifications shall not be deemed or construed to be a permit for, or an approval of, any violation of any of the provisions of this Code. No permit presuming to give authority to violate or cancel the provisions of this Code shall be valid, except insofar as the work or use which it authorized is lawful.

The issuance or granting of a permit or approval of plans shall not prevent the Administrative Authority from thereafter requiring the correction of errors in said plans and specifications or from preventing construction operations being carried on thereunder when in violation of this Code or of any other ordinance or from revoking any certificate of approval when issued in error.

Ever permit issued by the Administrative Authority under the provisions of this Code shall expire by limitation and become null and void, if the work authorized by such permit is not commenced within one hundred eighty (180) days from date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after work is commenced for a period of one hundred eighty (180) days. Before such work can be recommenced, a new permit shall be first obtained, and the fee

therefore shall be one-half the amount required for a new permit for such work, provided no changes have been made, or will be made in the original plan and specifications for such work; and provided further, that such suspension or abandonment has not exceeded one (1) year. Whenever any work for which a permit is required by this Code has been commenced without first obtaining said permit, an additional fee shall be collected at the time when the permit is issued. This fee shall be equal to the amount of the permit fees required by the most current City Resolution of Fees.

9.32.030 Plumbing permit fees.

Adopt Chapter 1, Division II, to specifically add and amend Section 103.1 of the California Plumbing Code is hereby amended for administrative requirements as follows

Table 1-1 Plumbing Permit Fees of the California Plumbing Code 2010 Edition is hereby deleted for administrative requirements. The fees shall be determined as required by the most current City Resolution of Fees.

9.32.040 Graywater systems general.

Section 1601A.0 of the California Plumbing Code is hereby amended for administrative requirements as follows

Exception 1 is deleted for the exemption from permit requirements

SECTION 7. Chapter 9.36 of Title 9 of the Manhattan Beach Municipal Code is hereby amended for the climatic findings above in its entirety as follows:

Chapter 36. SUSTAINABLE GREEN BUILDING PROGRAM AND ENERGY EFFICIENCY STANDARDS

9.36.010 Adoption of California Green Building Standards Code and California Energy Code.

Pursuant to the provisions of Section 50022.1 to 50022.10, inclusive, of the Government Code of the State and subject to the particular additions, deletions and amendments set forth in this chapter, the rules, regulations, provisions and conditions set forth in that certain Code entitled "California Green Building Standards Code 2010 Edition" and the "California Energy Code 2010 Edition," including the Appendices therein contained, promulgated and published by the California Building Standards Commission, one (1) full printed copy of which, printed as a Code in book form were by the Council ordered filed and which have been filed in the office of the City Clerk, expressly incorporated herein and made a part hereof as fully and for all intents and purposes as set forth herein at length, are hereby established and adopted as the rules, regulations, and provisions and conditions to be observed and followed in the planning, design, operation, construction, demolition, use, occupancy, operations and maintenance regarding the planning, design and construction of buildings and related systems, equipment, and building components for energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality enhancement in the city and related subjects, items and matters as set forth in said Code, within the City. Subject to the additions, deletions and amendments set forth in this chapter, said Code, with its said Appendices, is hereby established and adopted, and the California Green Building Standards shall be designated, known and referred to as "Sustainable Green Building Program" and the California Energy Code shall be designated, known and referred to as the "Energy Efficiency Standards" of and for the City.

Nothing in this chapter shall require the applicant to use covered products, as defined in the federal Energy Policy and Conservation Act (42 U.S.C. §6201 et seq.), that exceed any applicable federal energy conservation standards for such products.

9.36.020 Program and purpose.

A. This section sets forth Sustainable Green Building Program as well as minimum Energy Efficiency Standards within the City of Manhattan Beach for new construction and renovation as set forth below.

B. The purpose of the chapter is to enhance the public health and welfare by promoting the environmental and economic health of the City through the design, construction, maintenance, operation and demolition of buildings and other site development by incorporating sustainable building practices into all development. The sustainable building provisions referred to in this Chapter are designed to achieve the following goals:

1. Increase energy efficiency in buildings;
2. Encourage water and resource conservation through efficient fixtures and irrigation, recycled and renewable materials;
3. Improve indoor air quality; increased natural lighting, and improved thermal comfort/control.
3. Reduce waste generated by construction projects;
4. Provide durable buildings that are efficient and economical to own and operate; and
5. Promote the health and productivity of residents, workers, and visitors to the City.

9.36.030 Definitions.

City: the City of Manhattan Beach, State of California

City building: a building primarily funded by the City or on City owned land.

Compliance official: the Building Official or his or her designee.

Good faith effort: a project that has not met the required compliance threshold, but for extenuating reasons, the Compliance official has found the project meets the good faith effort provisions of Section 9.36.060.

LEED™: the "Leadership in Energy and Environmental Design" green building rating system developed by the U.S. Green Building Council (USGBC).

LEED® AP: A person who has been designated a LEED Accredited Professional by the Green Building Certification Institute (GBCI).

LEED™ checklist: The credit and point checklists developed by the Leadership in Energy and Environmental Design Green Building Rating System for measuring the sustainability, efficiency, and environmental soundness of a building.

Project: Any proposal for new or changed use, or for new construction, alteration, or enlargement of any structure, that is subject to the provisions of this title.

Renovation: any rehabilitation, repair, remodeling, change, or modification to an existing building, where changes to floor area and the footprint of the building are negligible. The valuation of renovation improvements shall be determined by the Director of Community Development per Section 10.68.030(E) of the Manhattan Beach Municipal Code. Additionally, the compliance official may exclude from such valuation the cost of (a) seismic upgrades, (b) accessibility upgrades, or (c) photovoltaic panels or other solar energy or similar devices exterior to the building.

Sustainable building rating system: the rating system associated with specific sustainable building criteria and used to determine compliance thresholds. An example of a rating system includes, but is not limited to, the LEED rating system.

9.36.040 Applicability.

- A. Projects meeting the following thresholds and for which no use permit, variance, vesting subdivision, or any other discretionary Planning approval has been granted, or for which no valid building permit has been lawfully issued by the City prior to the effective date of this ordinance shall comply with the provisions of this chapter:
1. City buildings of 5,000 square feet or more of new "gross floor area" (new construction), as defined by Section 10.04.030.
 2. Renovations of or in City buildings of 5,000 gross square feet or more, where the project exceeds the total building replacement valuation of 50% of the entire existing building as defined by Section 10.68.030(E) of the Manhattan Beach Municipal Code. For the purposes of this section, estimated construction and reconstruction costs shall be determined by the Community Development Director in the same manner as the Community Development Director determines final valuation for the purposes of building permit fees.
 3. Non-residential buildings of 10,000 square feet or more of "new gross floor area" (new construction) as defined by Section 10.04.030.
 4. Renovations of or in non-residential buildings 10,000 gross square feet or greater, where the project exceeds the total building replacement valuation of 50% of the entire existing building as defined by Section 10.68.030(E) of the Manhattan Beach Municipal Code. For the purposes of

this section, estimated construction and reconstruction costs shall be determined by the Community Development Director in the same manner as the Community Development Director determines final valuation for the purposes of building permit fees.

9.36.050 Standards for compliance:

- A. The City shall adopt by reference the USGBC LEED™ green building rating system as the standard for which a project shall be measured as a green building. Requiring projects to incorporate LEED™ green building measures is necessary and appropriate to achieve the benefits of green building. The specific actions required for project compliance with this chapter are as follows:
 1. All applicable projects are required to retain the services of a LEED® Accredited Professional who is accredited in the appropriate category for the project as determined by the Compliance official and complete LEED™ project registration prior to issuance of a building permit.
 2. All applicable projects shall submit a LEED checklist and supporting documentation indicating points meeting at a minimum LEED 'Silver' level incorporated into documentation for a building permit. Projects as described in Section 9.36.040 subsections 3. and 4. of 10,000 square feet or more of new gross square footage or more than 50% renovation shall meet LEED 'Silver' level. These projects would include, but not limited to, typical office, retail, medical, private club, religious, and academic buildings with occupied and conditioned spaces. A signed declaration from the LEED AP member of the Project team, stating that the plans and plan details have been reviewed, and that the Project meets the intent of the criteria for certification of the selected LEED™ Rating System. The LEED checklist shall be prepared, signed, and dated by the project LEED accredited professional. All building documents shall indicate in the general notes and/or individual detail drawing, where feasible, the green building measures employed to attain the applicable LEED rating.
 3. Applicable City buildings are required to attain LEED certification and meet, at a minimum LEED 'Gold' rating.
 4. Building commissioning, although specified as a prerequisite for LEED™ certification, is not required for applicable projects under this chapter except for City buildings. Applicants are encouraged to verify that fundamental building systems are designed, installed, and calibrated to operate as intended.
 5. All projects must demonstrate compliance with 2008 or the most recent California Energy Efficiency Standards (Title 24, Part 6) by submitting all required forms and calculations for review and approval by compliance official.

9.36.060 Compliance official's responsibilities

- A. The compliance official shall review the required LEED™ checklist and supporting documentation prior to issuance of a grading or building permit. Compliance official will use the appropriate LEED™ scoring system applicable to project and categories within it.
- B. The compliance official shall verify that the building measures and provisions indicated on the project LEED™ checklist and on the supporting approved documentation, including approved plan sets, are being implemented at foundation inspection, framing inspection, and prior to issuance of a final certificate of occupancy.
- C. The compliance official shall conduct any inspections as needed to ensure compliance with this chapter.

9.36.070 Penalties and administrative remedies

- A. If, as a result of any inspection, the compliance official determines that the applicable project does not comply with the approved documentation, a stop work order may be issued. At the discretion of the compliance official or designee such a stop work order may apply to the portion of the project impacted by noncompliance or to the entire project. The stop work order shall remain in effect until the compliance official determines that the project is in compliance with the requirements of this chapter.
- B. If the compliance official determines that the applicable project has not met the requirements of the LEED™ checklist, as set forth in section 9.36.060 of this chapter, he or she shall determine on a case by case basis whether the applicant has made a good faith effort to comply with this chapter. In making this determination, the compliance official shall consider the availability of markets for

materials to be recycled, the availability of sustainable building materials and technologies, and the documented efforts of the applicant to comply with this chapter. The compliance official or designee may require additional reasonable sustainable building measures be included in the operation of the covered project to mitigate the failure to comply fully with this chapter.

9.36.080 Mandatory and voluntary requirements.

Section 101.10 of the California Green Building Standards Code is hereby amended for administrative requirements and the climatic findings above as follows:

101.10 Mandatory and voluntary requirements. This code contains both mandatory and voluntary green building measures. Mandatory and voluntary measures are identified in the appropriate application checklist contained in this code. The mandatory measures of Chapter 4 and voluntary measures of Appendix A4 are applicable to new residential buildings except where specifically amended hereinafter. The mandatory measures of Chapter 5 and voluntary measures of Appendix A5 are applicable to all buildings which are not low-rise residential buildings except where specifically amended hereinafter.

9.36.090 Low-rise residential building

Section 202.10 of the California Green Building Standards Code is hereby amended for administrative requirements and the climatic findings above as follows:

LOW-RISE RESIDENTIAL BUILDING. A building that is of Occupancy Group R and is six stories or less, or that is a one- or two-family dwelling or townhouse.

9.36.100 Energy Efficiency.

Section A4.201.1 of the California Green Building Standards Code is hereby amended for the climatic findings and according to the building energy efficiency findings in Section 1B above as follows:

A4.201.1 [Residential] Scope and applicability. For the purposes of energy efficiency standards in this appendix, the California Energy Commission will continue to adopt mandatory standards. It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. Specifically, a green building should achieve at least a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards. Voluntary measures in Appendix A4 shall be required and applicable to new residential construction and major renovations exceeding 50% where the project exceeds the total building replacement valuation of 50% of the entire existing building as defined by Section 10.68.030(E) of the Manhattan Beach Municipal Code. For the purposes of this section, estimated construction and reconstruction costs shall be determined by the Community Development Director in the same manner as the Community Development Director determines final valuation for the purposes of building permit fees as specifically amended hereinafter.

Section A4.203.1 of the California Green Building Standards Code is hereby amended for the climatic findings according to the building energy efficiency findings in Section 1B above as follows:

A4.203.1 [Residential] Energy performance. Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, calculate each building's energy and CO₂ emissions, and compare it to the standard or "budget" building to achieve the following:

Requirement Exceed the *California Energy Code* based on the 2008 energy standards requirements by 15 percent. All projects must demonstrate compliance with 2008 California Energy Efficiency Standards (Title 24, Part 6) by submitting all required forms and calculations for review and approval by the Building Official to demonstrate the base and 15% compliance requirements.

9.36.110 Water Efficiency

Section A4.208 of the California Green Building Standards Code is hereby amended for the climatic findings according to the building energy efficiency findings in Section 1B above as follows:

A4.208 [Residential] Water Heating Design, Equipment and Installation. The following sections shall be mandatory as per 4.201.1:

A4.208.1 Tank type water heater efficiency. The Energy Factor (EF) for a gas-fired storage water heater less than or equal to 75,000 BTU/h shall be higher than .60 and for those exceeding 75,000 BTU/h shall be .84 or higher.

A4.208.2 Tankless water heater efficiency. The Energy Factor (EF) for a gas-fired tankless water heater shall be .80 or higher.

Add: A4.208.4 Pipe insulation and heat traps. Pipe insulation of not less than R-6 shall be installed at all hot water distribution and re-circulation system piping. Heat traps shall be installed at all non-circulating hot water heaters and tanks.

Add: A4.208.5 Solar water heating stub out. Pre-plumb piping and sensor wiring from water heater to attic for future solar water heating.

Sections A4.209 and A4.210 of the California Green Building Standards Code is hereby amended for the climatic findings and according to the building energy efficiency findings in Section 1B above as follows:

A4.209 and A4.210 [Residential] Lighting and Appliance rating. The following sections shall be mandatory as per 4.201.1:

A4.209.1 [Residential] Lighting. Building lighting shall consist of at least 90 percent ENERGY STAR qualified hard-wired fixtures.

A4.209.1 [Residential] Appliance rating. Each major appliance shall meets ENERGY STAR if an ENERGY STAR designation is applicable for that appliance, including but not limited to: exhaust fans, ceiling fans, clothes washers, refrigerators, freezers, wine coolers, primary space heating – ventilating- and air conditioning equipment, and dishwashers.

4.301.1 [Residential] Scope and applicability The provisions shall establish the means of conserving water used indoors, outdoors, and in wastewater conveyance. Indoor Water Use Section 4.303 requirements shall apply to any new indoor water fixtures to obtain 20% savings compared to the baseline provided in Table 4.303.1

Section 4.303.4 of the California Green Building Standards Code is hereby added for the climatic findings above as follows:

4.303.4 Retrofit requirements upon sale of residential real property. All existing residential buildings shall, at the time of sale before change of ownership, be retrofitted, if not already so, with high efficiency toilets, that meet the most current U.S. Environmental Protection Agency Water Sense program requirements, with a minimum standard of at least 1.28 gallons per flush. See Chapter 9.24 Report of Residential Building Records.

Section 4.304.1 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

4.304.1 Irrigation controllers. Automatic irrigation system controllers for landscaping provided and installed at the time of final inspection shall comply with the following:

1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

Table 4.602 Residential Applications Checklist for Sections 4.303.1, 4.303.2, and 4.303.3 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

Indoor water use. These shall be effective 1/1/2011

9.36.120 Material Conservation and Resource Efficiency

Section 4.408.1 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

4.408.1 [Residential] Construction Waste Reduction of at least 65% Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition debris. See Municipal Code sections: 5.26.010 Definitions: "Diversion Requirement," 5.26.050 Review of Waste Management Plan, and 5.26.060 Compliance with Waste Management Plan

Section 5.408.3 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

5.408.3 [Nonresidential] Construction Waste Reduction of at least 65% Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition debris. See Municipal Code sections: 5.26.010 Definitions: "Diversion Requirement," 5.26.050 Review of Waste Management Plan, and 5.26.060 Compliance with Waste Management Plan. Calculate the amount of materials diverted by weight or volume, but not by both.

Appendix Section A4.403.2 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

A4.403.2 Reduction in cement use. Reduction in cement use is required: cement used in foundation mix design shall be reduced as follows:

Requirement 1. Not less than a 20 percent reduction in cement use.

[Voluntary] Tier 2. Not less than a 25 percent reduction in cement use.

Note: Products commonly used to replace cement in concrete mix designs include, but are not limited to:

1. Fly Ash
2. Slag
3. Silica fume
4. Rice hull ash

9.36.130 Environmental Quality

Section 4.501.1 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

4.501.1 [Residential] Scope and Applicability The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors. Requirements for adhesives, sealants, caulks, and finishes shall apply to any construction. Fireplace Section 4.503 shall apply to any new gas fireplaces.

Section 4.503.2 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

4.503.2 Fireplaces – General. Any installed gas fireplace shall be a direct-vent sealed-combustion type with a 65% thermal efficiency. Any installed woodstove or pellet stove shall comply with the U.S. EPA Phase II emission limits where applicable. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

Section 5.501.1 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

5.501.1 [Nonresidential] Scope and Applicability The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors. Requirements for adhesives, sealants, caulks, and finishes shall apply to any construction or renovation. Fireplace Section 5.503 shall apply to any new gas fireplaces.

Section 5.503.1 of the California Green Building Standards Code is hereby amended for the climatic findings above as follows:

5.503.1 Fireplaces – General. Install only direct-vent sealed-combustion type with a 65% thermal efficiency gas or fireplace. Refer to residential requirements in the *California Energy Code*, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances.

9.36.140 California Energy Code

Sections 114 (a) 4 & (b) 2 of the California Energy Code are hereby amended for the climatic findings and according to the building energy efficiency findings in Section 1B above as follows:

114 (a) 4. Electric resistance heating. No electric resistance heating; solar collectors shall provide not less than 60% of the energy for heating swimming pools and spas and

Exception 1 to Section 114 (a)4: Listed package units with fully insulated enclosures, and with tight-fitting covers that are insulated to at least R-6.

Exception 2 to Section 114 (a) 4: Pools or spas deriving at least 60 percent of the annual heating energy from site solar energy or recovered energy.

114 (a) 2. Covers. A thermal cover or blanket rated at not less than R-15 for outdoor pools or outdoor spas that have a heat pump or gas heater.

Section 151 (a) 3 of the California Energy Code is hereby amended for the climatic findings and according to the building energy efficiency findings in Section 1B above as follows:

151(a) 3. Basic Requirements [New Residential]. Either the performance standards (energy budgets) or the prescriptive standards (alternative component packages) set forth in this section for the climate zone in which the building will be located. Climate zones are shown in Figure 101-A. When utilizing the performance standards, the building shall exceed the *California Energy Code* based on the 2008 energy standards requirements by 15 percent.

Section 152 (a) 2 of the California Energy Code is hereby amended for the climatic findings and according to the building energy efficiency findings in Section 1B above as follows:

152(a) 2. Performance approach [Residential Additions]. Performance calculations shall meet the requirements of Section 151 (a) through (e), pursuant to either Item A or B below, with the condition that where the project exceeds the total building replacement valuation of 50% of the entire existing building as defined by Section 10.68.030(E) of the Manhattan Beach Municipal Code – the project shall be calculated to exceed the California Energy Code based on the 2008 energy standards requirements by 15 percent. For the purposes of this section, estimated construction and reconstruction costs shall be determined by the Community Development Director in the same manner as the Community Development Director determines final valuation for the purposes of building permit fees

SECTION 8. Chapter 9.64 of Title 9 of the Manhattan Beach Municipal Code is hereby amended per administrative requirements in its entirety as follows:

Chapter 64. MECHANICAL CODE

9.64.010 Adoption of California Mechanical Code.

Pursuant to the provisions of Section 50022.1 to 50022.10, inclusive, of the Government Code of the State and subject to the particular additions, deletions and amendments set forth in this chapter, the rules, regulations, provisions and conditions set forth in that certain Code entitled "California Mechanical Code 2010 Edition," including Appendix A therein contained, promulgated and published by the International Association of Plumbing and Mechanical Officials of. One (1) full printed copy of which, printed as a Code in book form were by the Council ordered filed and which have been filed in the office of the City Clerk, expressly incorporated herein and made a part hereof as fully and for all intents and purposes as set forth herein at length, are hereby established and adopted as the rules, regulations, provisions and conditions to be observed and followed in the erection, installation, alteration, repair, relocation, replacement, addition to, use or maintenance of any heating ventilating, comfort cooling, refrigerator systems, incinerators, or other miscellaneous heat producing appliances in the city; and subject to the additions, deletions, and amendments set forth in this chapter, said Code with Appendix A, containing said rules, regulations, standards, provisions, and conditions is hereby established and

adopted, and the same shall be designated, known and referred to as the "Mechanical Code" of and for the City.

9.64.020 Violations and penalties.

Add Section 111.0 of the California Mechanical Code to be amended for administrative requirements as follows

Any person, firm or corporation violating any provisions of this Code shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine of not to exceed One Thousand and no/100th (\$1,000.00) Dollars or by imprisonment in the County Jail of the County of Los Angeles, California, for not to exceed six (6) months, or by both such fine and imprisonment. Each separate day or any portion thereof during which any violation of this Code occurs or continues shall be deemed to constitute a separate offense, and upon conviction thereof shall be punishable as herein provided. The issuance or granting of a permit or approval of plans and specifications shall not be deemed or construed to be a permit for, or an approval of, any violation of any of the provisions of this Code. No permit presuming to give authority to violate or cancel the provisions of this Code shall be valid, except insofar as the work or use which it authorized is lawful.

The issuance or granting of a permit or approval of plans shall not prevent the Administrative Authority from thereafter requiring the correction of errors in said plans and specifications or from preventing construction operations being carried on thereunder when in violation of this code or of any other ordinance or from revoking any certificate of approval when issued in error.

9.64.030 Mechanical permit fees.

Add Section 115.1 of the California Mechanical Code to be amended for administrative requirements as follows:

Table 1-1 Mechanical Permit Fees per administrative requirements is hereby deleted. The fee shall be determined as required by the most current City Resolution of Fees.

SECTION 9. Chapter 5.26 of Title 5 of the Manhattan Beach Municipal Code is hereby amended for the climatic findings above as follows:

Chapter 26. CONSTRUCTION AND DEMOLITION DEBRIS WASTE REDUCTION AND RECYCLING REQUIREMENTS

Section 5.26.010 shall be amended as follows:

Definitions. K. "Diversion requirement" means the redirection of at least sixty-five percent (65%) of the total construction and demolition debris generated by a project via reuse or recycling, unless the applicant has been granted an exemption pursuant to Section 5.26.070 of this chapter, in which case the diversion requirement shall be the maximum feasible diversion rate established by the WMP Compliance Official for the project.

Section 5.26.050 Review of Waste Management Plan Subsection A.2. and B. shall be amended as follows:

A.2. WMP must indicate that at least sixty-five percent (65%) of all C & D debris generated by the project will be diverted.

B. Nonapproval. If the WMP Compliance Official determines that the WMP is incomplete or fails to indicate that at least sixty-five percent (65%) of all C & D debris generated by the project will be reused or recycled, he or she shall either:

Section 5.26.060 A. shall be amended as follows:

5.26.060 A. Documentation. Prior to the final building approval, the applicant shall submit to the WMP Compliance Official documentation that it has met the diversion requirement for the project. If the applicant does not submit the required documentation, he or she may be subject to an administrative penalty or enforcement action as described in Sections 5.26.040 and 5.26.080 of this chapter. The diversion requirement shall be that the applicant must divert at least sixty-five percent (65%) of the total C & D debris generated by the project via reuse or recycling. Provided, however, that an applicant granted an exemption pursuant to Section 5.26.070 of this chapter shall be required to comply with the maximum feasible diversion rate established by the WMP Compliance Official for that project. The documentation for compliance shall include all of the following...

SECTION 10. Any provisions of the Manhattan Beach Municipal Code, or appendices thereto, or any other ordinances of the City, to the extent that they are inconsistent with this ordinance, and no further, are hereby repealed.

SECTION 11. If any section, subsection, sentence, clause, or phrase of this ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of the ordinance. The City Council hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared invalid or unconstitutional.

SECTION 12. If any section, subsection, sentence, clause, or phrase of this ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of the ordinance. The City Council hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared invalid or unconstitutional.

SECTION 13. Any provisions of the Manhattan Beach Municipal Code, or appendices thereto, or any other ordinances of the City, to the extent that they are inconsistent with this ordinance, and no further, are hereby repealed.

SECTION 14. This notice shall be published by one insertion in *The Beach Reporter*, the official newspaper of the City, and this ordinance shall take effect and be in full force and operation thirty (30) days after its final passage and adoption.

SECTION 15. The City Clerk shall certify to the adoption of this ordinance; shall cause the same to be entered in the book of original ordinances of said City; shall make a minute of the passage and adoption thereof in the records of the meeting at which the same is passed and adopted; and shall within fifteen (15) days after the passage and adoption thereof cause the same to be published by one insertion in *The Beach Reporter*, the official newspaper of the City and a weekly newspaper of general circulation, published and circulated within the City of Manhattan Beach hereby designated for that purpose.

SECTION 16. This Ordinance will become effective no sooner than January 1, 2011.

SECTION 17. The City Clerk shall cause a summary of this Ordinance to be published as provided by law. The summary shall be published and a certified copy of the full text of this Ordinance shall be posted in the Office of the City Clerk at least five (5) days prior to the City Council meeting at which this Ordinance is to be adopted. Within fifteen (15) days after the adoption of this Ordinance, the City Clerk shall cause a summary to be published with the names of those City Council members voting for and against this Ordinance and shall post in the Office of the City Clerk a certified copy of the full text of this Ordinance along with the names of those City Council members voting for and against the Ordinance.

PASSED, APPROVED and ADOPTED this 16th day of November, 2010.

Ayes:	Powell, Cohen, Ward, Tell and Mayor Montgomery.
Noes:	None.
Abstain:	None.
Absent:	None.

/s/ Richard Montgomery

Mayor, City of Manhattan Beach, California

ATTEST:

/s/ Liza Tamura
City Clerk

